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Purussaurus brasiliensis pdf

Aureliano and his team revealed that the extinct Purussaurus needed approximately 40 kg (88 pounds) of food a day. This is twenty times the requirement for the modern American alligator. It also had one of the strongest bites ever measured in any terrestrial carnivore. The team estimated that the creature could deliver sustained pressure of 7 tons, much stronger even than Tyrannosaurus, the previous strongest biter on land. Aline M. Ghilardi, a member of the team, explains that like T. rex, Purussaurus was an undisputed apex predator with no real competition from other carnivores. He was able to assume mammals weighing more than a ton, and his skull was specially reinforced to withstand the pressures of such force. Most fossils of Purussaurus brasiliensis are 8 million years old, dating back to the late Miocene. These rocks revealed a huge system of lakes and wetlands known as the Pebas System, an area somewhat like an inland sea in the northern region of South America. It was very different from today's Amazon, with the Andes still on the rise. Fossil wildlife from the varied environments of Pebas included large waterfowl. In the water were giant fish like several huge catfish species still alive today. There were also several capybara rodents the size of water buffaloes, giant terrestrial sloths and strange hoof animals called notoungulates as large as a rhinoceros. The Pebas was also dominated by several giant reptiles such as the Stupendemys herbivorous turtle, as large as a car. Purussaurus also lived with several species of alligator and normal-sized gavials and even some royal leviatians almost as large as itself. But there was little competition between these creatures. Instead, there were varied environments in the extensive Pebas and a lot of niche partitioning. While Purussaurus fed on almost everything as an adult, his contemporaries ate smaller fish or prey. Aureliano and his team had revealed a diverse wetland ecosystem dominated by carnivorous reptiles and very few mammalian predators. According to them, it was still a very fragile system and Purussaurus itself was among the most fragile components. Even if it were huge and powerful, the creature will soon become extinct in a few million years. The Andes Mountains, now a dominant feature of South America, continued to increase and this meant a change in drainage patterns in the Amazon region. According to Ghilardi, the change spelled disaster for the entire Pebas environment. During the Pliocene, the period that happened to the Miocene, the Pebas began to drain. It would soon become a system of rivers rather than a vast series of lakes and inland seas. Through the Amazon, smaller species were favored above the larger ones. Many of the massive rodents and hoofed mammals soon or would be replaced by newer species adapted to new habitats. The same thing he did for the reptiles. There were three types of monster crocodile at the end of the Miocene, with Purussaurus being one of them. Its huge size put a number of restrictions on it. On the one hand, it needed a lot of food to feed its volume, and without its prey, the animal began to decline. In a rapidly changing world, the very size of the animal had become its handicap. The era of South American giant reptiles was over forever and terrifying reptiles like Purussaurus or its relatives would never return. Based on original research published on PLOS ONE. Later, the huge block skulls of the beasts were discovered. From these remains it was estimated that Purussaurus was one of the largest crocodiles ever found and one of the largest reptiles that exist after the extinction of dinosaurs. It was 12.5 meters long and weighed 8.4 tons, as long as it was a bus. But some finer details of the creature's biology remained a mystery. For example, it was not known exactly how Purussaurus killed its prey and its daily food intake was not known. Recently, a team led by Tito Aureliano of the Federal University of Rio de Janeiro began studying the type and the largest species of the genus, the colossal P. brasiliensis. The team published their findings in the scientific journal PLOS ONE. The thick head of the giant alligator, the subject of Aureliano's research, was 1.5 meters long, approximately as large as the entire body of some species of modern alligators living today. For the study, the creature was compared to other crocodile species such as black alligators and saltwater crocodiles and Nile. All these animals have previously been measured by the force of their bites and by their feeding behavior. Aureliano and his team revealed that the extinct Purussaurus needed approximately 40 kg (88 pounds) of food a day. This is twenty times the requirement for the modern American alligator. It also had one of the strongest bites ever measured in any terrestrial carnivore. The team estimated that the creature could deliver sustained pressure of 7 tons, much stronger even than Tyrannosaurus, the previous strongest biter on land. Aline M. Ghilardi, a member of the team, explains that like T. rex, Purussaurus was an undisputed apex predator with no real competition from other carnivores. He was able to assume mammals weighing more than a ton, and his skull was specially reinforced to withstand the pressures of such force. Most fossils of Purussaurus brasiliensis are 8 million years old, dating back to the late Miocene. These rocks revealed a huge system of lakes and wetlands known as the Pebas System, an area somewhat like an inland sea in the northern region of South America. It was very different from today's Amazon, with the Andes still on the rise. Fossil wildlife from the varied environments of Pebas included large waterfowl. 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Fossil fossils and evolution purussaurus brazil reptiles crocodilians miocene reptiles myocene myocene animals myocene myocene bones of myocene Purussaurus Temporal range: Early-Late Miocene (Colhuehuapian-Montehermosan)20.4–5.3 Ma PreЄ O S D C P T K. brasiliensis Scientific classification Kingdom: Animalia Phylum: Chordata Class: Order Reptilia Family: Alligatoridae Subfamily: Caimaninae Genus: †PurussaurusRodrigues, 1892 Species †P. brasiliensis (type species) Barbosa-Rodrigues, 1892 †P. neivensis Mook, 1941 †P. mirandai Aguilera et al., 2006s Synonym Dinosuchus neivensis Langston, 1965 Purussaurus is an extinct genus of giant alligator that lived in South America during the Miocene period, from the Colhuehuapian to the Montehermosan in the SALMA classification. It is known from found cranial material the Brazilian and Peruvian Amazon, the Colombian Villavieja Formation, the Panamanian Culebra Formation and the Urumaco and Socorro formations of northern Venezuela. Description Scale diagram showing the size of P.P. (red) The skull length of the largest known individual of the type species, P. brasiliensis is 1,453 millimeters (57.2 in). [1] It has been estimated that P. brasiliensis reached about 10.3 meters (34 feet) in length, weighing approximately 5.16 metric tons (5.69 short tons). [1] Another estimate gave a larger size of 12.5 meters (41 feet) in length and 8.4 metric tons (9.3 short tons) in weight, with an average daily food intake of 40.6 kilograms (90 lb). [2] However, these proportions have been found with a lot of scrutiny, and Purussaurus is more likely to reach only 10.9 meters (36 feet) long and 5.6 metric tons (6.2 short tons). [3] As only skulls have been found, the actual length is not safe. It has been estimated that the bite force is around 52,500 N (about 5.3 metric tons of force). [2] The large size and estimated strength of this animal seems to have allowed it to include a wide range of prey in its diet, making it an apex predator in its ecosystem. As an adult, there would have been prey to large to very large vertebrates such as xenarthrans and notoungulates present, without real competition from smaller psychiatric carnivores. Researchers have proposed that the large size of Purussaurus, while offering many advantages, may also have led to its vulnerability. The constantly changing environment on a large geological scale may have reduced their long-term survival, favoring smaller species more resistant to ecological changes. In other words, it was over-specialized and could not survive when its habitat changed, unlike the smaller alligator-related species. [2] The teeth vary between the three species of Purussaurus, but are always about 50 mm (2 in) long and curved slightly backwards. They have small ridges along two of the edges that resemble those of ziphodonts. This indicates that Purussaurus hunted large vertebrates, as these ridges are used to pierce and cling to meat. The teeth are slightly flattened at the top and are more or less conical, meaning they would have been unlikely to break on impact with a thick bone. The foreground teeth are taller and sharper, while those on the back are lower and more rounded. [2] Purussaurus is one of the largest known crocodyliforms that have ever existed. Three other extinct crocodyliforms, Sarcosuchus, Deinosuchus and Rhamphosuchus had similar body sizes. Sarcosuchus and Deinosuchus had similar proportions, but both were geologically much older, dating from the Early and Upper Cretaceous, respectively. One study also indicates that Purussaurus may have been heavier than Sarcosuchus or Deinosuchus, as it had a much wider and shorter snout and this would require a more and stronger to support the bigger head. [2] Rhamphosuchus lived around the same time as Purussaurus, but was a little smaller, had a more gharial snout and lived in India. During the summer of 2005, a Franco-Peruvian expedition (the Fitzcarrald expedition) found new Fossils of Purussaurus in the Peruvian Peruvian Amazon km from Lima). Recognitions[edit] Analysis of a biomechanical model of the Purussaurus skull indicated that it was capable of performing the death roll maneuver used by existing crocodiles to subdue and dismember their prey. [4] All the organs of the senses (eyes, ears, nostrils) were at the top of the head, indicating that Purussaurus was an ambush predator like many modern alligators. Higher estimates indicate that Purussaurus was able to generate 69,000 N (about 7 metric tons) of pressure with its jaws. Paleocology Restoration of Purussaurus brasiliensis Stupendemys, crocodiles such as Charactosuchus, Gryposuchus and Mourasuchus, Aninga birds, and mammals including sloths, bats, rodents as relatives of the modern capybara weighing up to 700 kilograms (1540 pounds), the Stirtonia primate, and river dolphins were all present, and probably all would have been eaten by Purussaurus. The environments of rivers, floodplains and lakes were present. [5] Marine and freshwater fish, turtles, crocodiles and terrestrial and aquatic mammals are associated with Venezuelan P. mirandai. Its environment is described as tropical and coastal. The former Colombian P. neivensis lived alongside a huge variety of fauna, including astrapotheres such as Granastropotherium and Xenastropotherium, the first species of Mourasuchus and Gryposuchus, and terrestrial crocodyliform Langstonia. This fauna dates back 13 million years, in the late Miocene stage. [6] Fossil distribution of Purussaurus have been found in:[7] Miocene Solimões Formation, Brazil Honda Group and Castilletes Formation, Colombia Culebra Formation, Panama Fitzcarrald Arch and Pebas Formation, Peru Urumaco Formation, Urumaco and Socorro Formation, Venezuela See also Mourasuchus References Paleontology Portal, Jorge Moreno-Bernal (2007). Size and Paleocology of the Giant Miocene South American Crocodiles (Archosauria: Crocodylia). Journal of Vertebrate Paleontology. 27 (3 [suppl.]): A120. doi:10.1080/02724634.2007.10010458. a b c d e Aureliano, Titus; Ghilardi, Aline M.; Guilherme, Edson; Souza-Filho, Jonas P.; Cavalcanti, Mauro; Riff, Douglas (2015). Morphology, Bite-Force and Paleobiology of the Late Miocene Caiman Purussaurus brasiliensis. PLOS ONE. 10 (2): e0117944. Bibcode:2015PLoSO...1017944A. doi:10.1371/journal.pone.0117944. ISSN 1932-6203. PMC 4331287. PMID 25689140. • White, R.E.; Jones, W. W.; Villamil, J. N. (2014-04-16). 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