largest *Acrocanthosaurus* specimen, estimated at 11,5-12m, had a 129cm long skull, suggesting sizes of ~14m. While a large skulled Giganotosaurine built would suggest a smaller overall size, the proportional size of the femur and its correlation with total lenght makes such a built unlikely. Sereno himself lists the *Carcharodontosaurus* neotype as 45ft long. While previous estimates for this animal have varied widely, from 11m and 3t to 15m and above, and up to 15t, it is safer to assume weights in the range of 8-9t.

3: Mapusaurus roseae:

Another recent discovery from Cenomanian South America consisted of several individuals of the new genus and species *Mapusaurus roseae*. Not only is this the first evidence for a derived carnosaur hunting in packs, but also a good amount of material of a new huge theropod. An isolated pubic shaft and a fibula are described as110% and 103% the size of the same parts in *Giganotosaurus* (MUCPv-CH1) respectively. The published estimate leaves the upper bound of this animals size open, stating it was longer than 12,2m. Various figures exist, however a length of 13-14m is most feasible. A *Mapusaurus* that size probably massed ~8-9t.

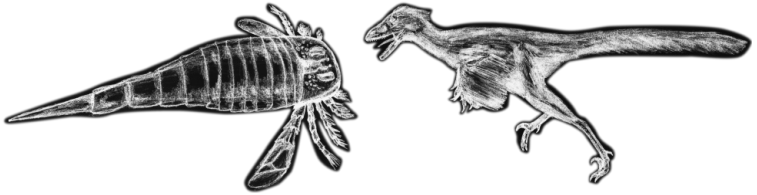
2: Morroccan/Spanish ichnotaxon

Several footprints in excess of 70cm are known from upper Jurassic Europe and Africa, more than from any other epoch. Some specimens, like one from Asturias, Spain exceed 80cm in lenght, excluding the metatarsal impression. From the Oxfordian or Kimmeridgian Iouaridène strata of Morrocco three seperate trackways are known, each containing ichnites in excess of 80cm, excluding deformed specimens. One isolated print, 19IGR, even reaches 90cm, making it the largest known theropod footprint. The authors of these trace's description consider them as such and as among the largest theropods known. Considering their abundance, it is most likely that the unidentified trackmakers where large Allosauridae, and the size of the footprints indicates animals with a conservative maximum lenght of 14-15m, and a probable weight of 9t or more. With these near mythic dimensions it joins a line of poorly known giants whose only remains are trace fossils, including the enigmatic sauropods that left the trackways in Broome, Australia, and Plagne, France.

1: Spinosaurus aegyptiacus

The Cenomanian *Spinosaurus aegyptiacus* from Africa holds the crown of the largest theropod and the largest terrestrial predator ever, at least at the moment. Due to the very fragmentary nature of this animal's remains, it is hard to come to a reliable conclusion on its size, however the largest known specimen, MSNM V4047 was estimated at 14-18m, the upper range clearly basing on a more reliable metod, upscaling from its relatives, like *Suchomimus* and *Baryonyx*. The specimen in question is a rostrum, measuring about 99cm from the tip to the jugal contact. Reconstructions based on these relatives would suggest an 1,6-1,95m long skull, with intermediate estimates of 1,75-1,8m being the most likely, making it the longest theropod cranium known. Future research will probablyhelp us understand this animal's biology much better, but for now the estimations remains very speculative. Like in *Carcharodontosaurus*, the holotypic remains of *Spinosaurus* where discovered by Ernst Stromer and destroyed in World War II, leaving only photographs and drawings behind. This creature probably massed more than 12t, at a total axial lenght exceeding than 16m.

Prehistoric



Nature

“Decrowners of the King”: a top 10 of theropods larger than Tyrannosaurus

Stratesaurus *and a new View on the cladistics of Plesiosaurs*

S. taylori represents an early and small species of basal rhomaleosaur from the lower Jurassic Hettangian stage of the UK. It was described by Benson et al. in 2012, basing on the holotype OUMNH J.10337, which consists of a skull, ilium, some vertebrae and a partial hindlimb. Other referred specimens are GSM 26035, consisting of a skull and some cervicals, and AGT 11. Diagnostic features include the built of the cervical vertebrae, and the short pectoral centra. *Stratesaurus* was a relatively small animal, with a skull measuring only 18cm. It's describers performed a cladistic analysis, summarizing Pliosauridae and Plesiosauroidea in the clade Neoplesiosauria and classifying Rhomaleosauridae as the sister taxon of this clade.

Magnapaulia*: finally a Genus Novus for Lambeosaurus "laticaudus"*

In 2012, Prieto-Márquez et al. erected *Magnapaulia* as a new genus for *L. "laticaudus"* (Morris, 1981), a giant Campanian lambeosaurine that was named basing on the holotype LACM 17715 from Baja California. Numerous other specimens have been referred to this species. *Magnapaulia* reached a lenght of 15-16,5m, thus being among the largest hadrosaurs and among the largest non sauropod animals ever.

Yutyrannus*, a giant feathered Tyrannosaur*

Yutyrannus huali is a new genus and species of huge, feathered tyrannosaur from the lower Cretaceous of China. It was named by Xu et al. in 2012 on the basis of the holotype specimen ZCDM V5000, consisting of a complete, 9m long skeleton of an adult individual, including a 90cm long skull. Currently two other specimens of this species are known, ZCDM V5001, a skeleton that represents an adult somewhat smaller than the holotype, with a skull measuring 80cm, and ELDM V1001, a juvenile with a 63cm long skull. Currently *Yutyrannus* is the largest evidentially feathered animal known to science. On ELDM V1001, some filamentous feathers on the neck and arms approached 20cm in lenght. *Y.huali* phylogenetically represents an intermediate form between the most basal forms of tyrannosauroids (eg. *Dilong*, *Guanlong*) and more derived taxa (eg. *Eotyrannus*). Autapomorphies of *Yutyrannus huali* include a crest on the skull, the built of the postorbital fenestra and that of the mandibular ones.

Ostafrikasaurus*, a Jurassic Spinosaur*

Ostafrikasaurus crassiserratus is a spinosaur from the upper Jurassic Tithonian stage of the Tendaguru-Formation in Tanzania that was described by Buffetaut in 2012, on the base of MB R 1084, and isolated tooth previously assigned to *"Labrosaurus*", a junior synonym of *Allosaurus*. It reached aproximately 8m in lenght. *Ostafrikasaurus* is the earliest spinosaurid currently known. It was found to differ from other members of this group by posessing denticles.

This list of giant theropods is ranked after lenght, and merely gives a short overview. Some other possible contenders, like Torvosaurus/Edmarka or the enigmatic Kelmayisaurus were left out, due to massive uncertainities. Not all the animals on this list are heavier than the famous T. rex, however all are longer following the most feasible estimates.

10: Bahariasaurus ingens

This huge theropod from Cenomanian Africa likely reached a total lenght of more than 13m, though it likely didn't exceed 5t due to its light built. Belonging to the ceratosaurs it is the only theropod outside tetanura on this list. The paratype (IPHG 1912 VIII) has at times been erraneously referred to the newly erected, probably synonymous genus *Deltadromeus*.

9: Chilantaisaurus tashuikouensis

Chilantaisaurus was an enourmous neovenatorid from the late cretaceous of Asia. Estimated at 11-13m in lenght, it was easily the largest theropod the continent has ever seen. Some of the most impressive remains are a humerus of more than half a metre in lenght, and a 95cm long tibia.

8: Saurophaganax/Allosaurus maximus:

This huge allosaurid from the upper Jurassic of North America and possibly Europe might in fact be not more than a large *Allosaurus*. A humerus (OMNH 1935), measuring 49-55cm (depending on the reference) deduces an animal 11-13m long, based on smaller *Allosaurus* specimens. Being overally larger, its arms, following common theropod allometry, were probably proportionally shorter. Earlier estimates have put this taxon at up to 14. A 13m *Saurophaganax* would have likely weighed in at more than 6,5t.

7: Oxalaia quilmoebensis

Oxalaia is a relatively recent discovery. The found fossils belong to a huge spinosaur estimated as being 12-14m in lenght, but the upper end of these estimates might be too liberal. Tough probably less massive than some other giant theropods, it is one of the longest of them all. A distinctive character are the varying morphotypes of teeth this fish eater posessed, this might be an adaption to a more specialized diet than other Spinosaurs. In South America, were it lived during the Cenomanian period of the middle Cretaceous, only few other theropods surpassed it in size. To date, it is the second largest spinosaur known.

6: Carcharodontosaurus iguidensis

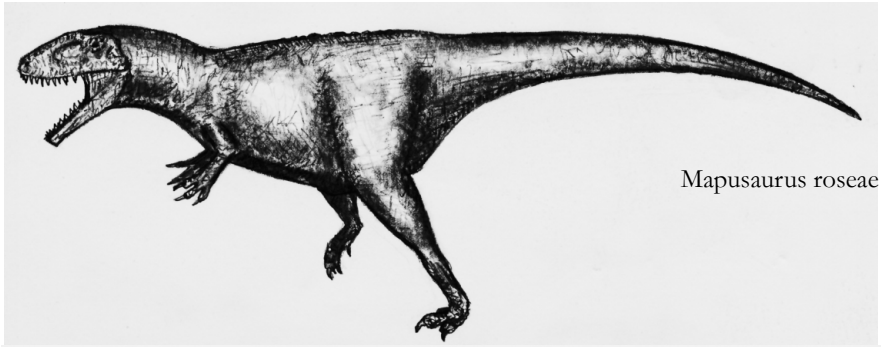
This recently discovered species of *Carcharodontosaurus* from Cenomanian Africa was subequal to the contemporary *C. saharicus* in size. There are considerable differences in the two species' anatomies, for example *C. iguidensis* appearantly had a larger brain cavity and a shorter rostrum. Earlier, overenthusiastic media reports claimed it to have been larger than its relative, but actually most of the remains are either the same size or smaller.

5: Giganotosaurus carolinii

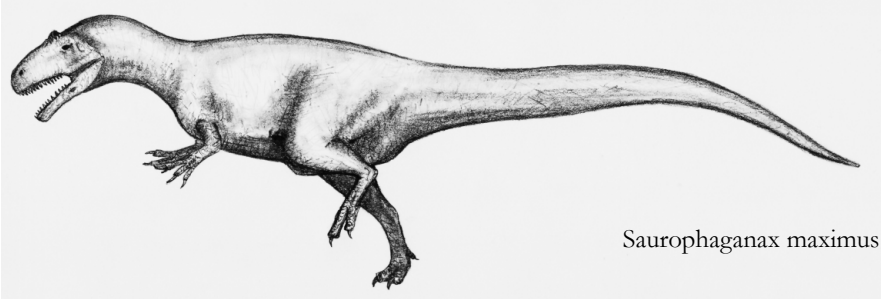
This middle cretacous carcharodontosaur from South America exhibits one of the longest skulls of any theropod, and it is among the largest of them in terms of body size. The incomplete type specimen, MUCPv-Ch1, estimated at 12,2-13m in total lenght, had a skull between 1,49 and 1,63m in lenght, a second specimen, MUCPv-95 might have been about 8% longer, meaning it could have had a skull measuring 1,6-1,76m, and a total body lenght of 13,2-14m. The exceptional skull lenght of this taxon is largely due to the long quadrate (44cm), seemingly a characteristic of carcharodontosaurs, elongating the posterior end of the cranium.

4: Carcharodontosaurus saharicus

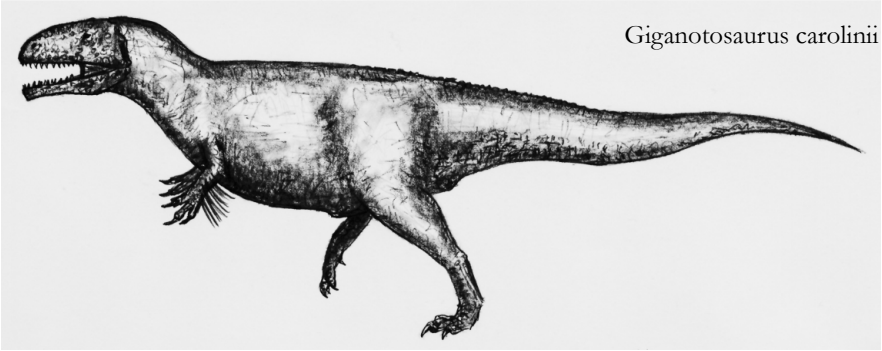
This gigantic carcharodontosaur was first described as *"Megalosaurus saharicus"* and later assigned to Stromers newly erected genus *Carcharodontosaurus*. Even tough the holotype, including a partial skull and a 126cm long femur, which was later destroyed in World War II wasn't exceptionally large, smaller than the largest *Acrocanthosaurus* specimen when basing on skull dimensions, the neotype (SGM DIN 1) must have been a huge behemoth. SGM DIN 1, described by Sereno et al. in 1996 mainly consists of a well preserved skull, which can be estimated at ~157-165cm in lenght from the premaxilla to the quadratojugal. By comparison, the



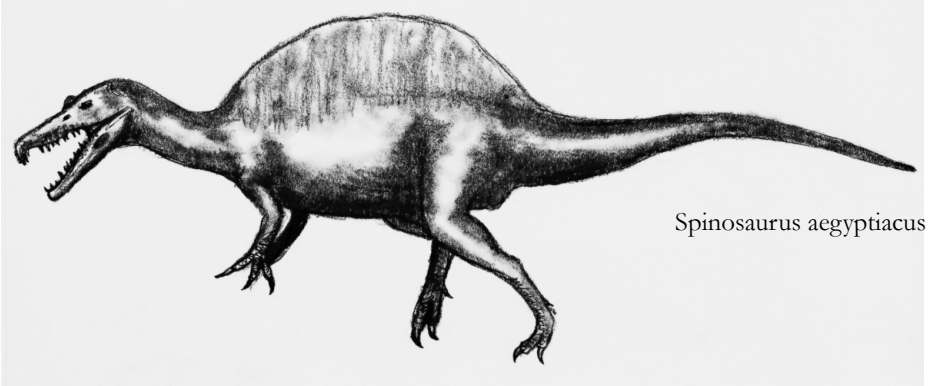
Mapusaurus roseae



Saurophaganax maximus

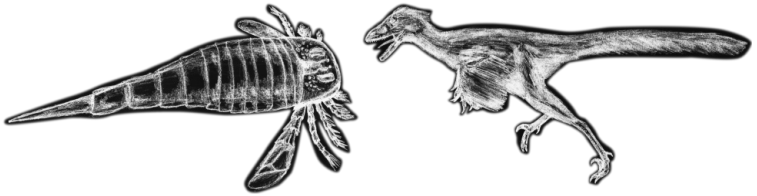


Giganotosaurus carolinii



Spinosaurus aegyptiacus

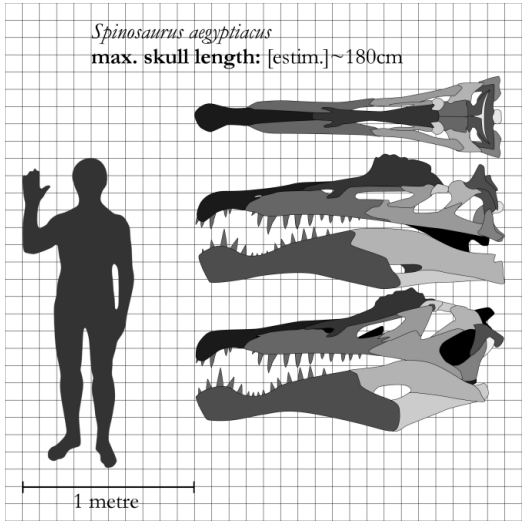
Prehistoric

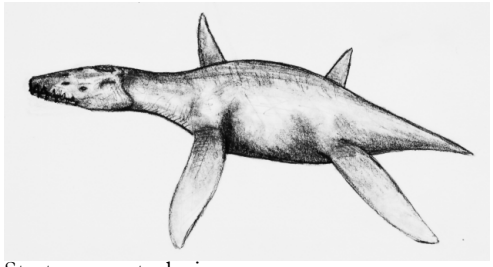


Nature

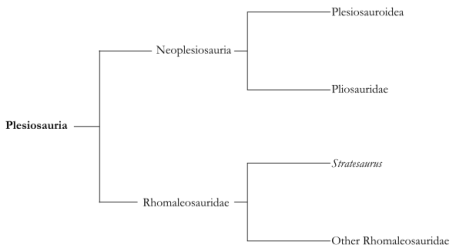
Issue 10

Supplememtary Images

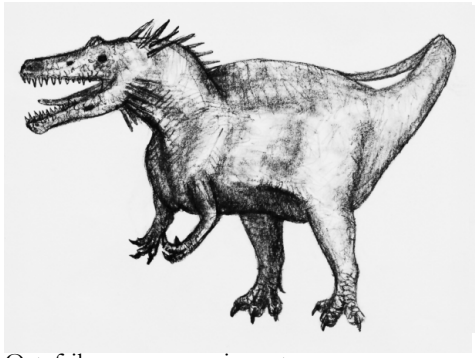




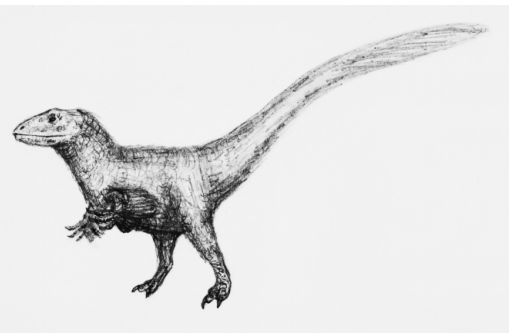
Stratesaurus taylori



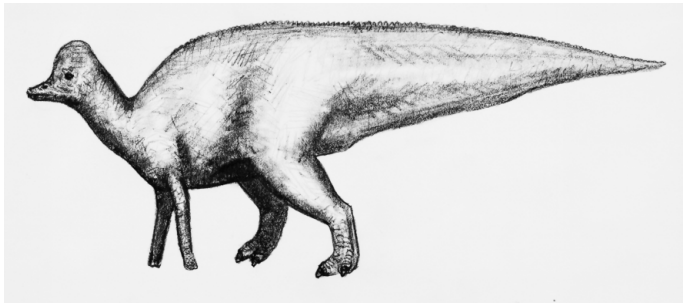
Cladistics of Plesiosauria following Benson et al. (2012)



Ostafrikasaurus crassiserratus

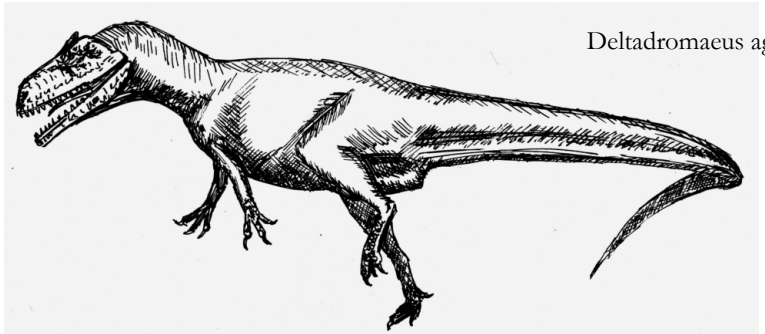


Yutyrannus huali



Magnapaulia laticaudus

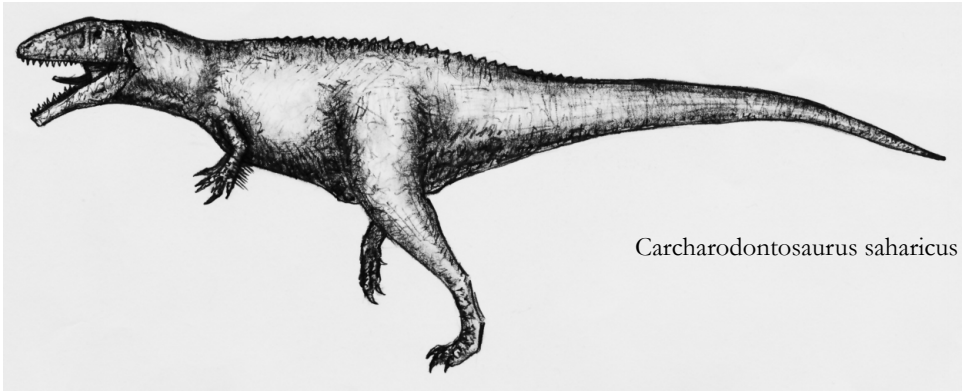
Torvosaurus sp.



Deltadromaeus agilis

Chilantaisaurus tashuikuensis

Oxalaia quilombensis



Carcharodontosaurus saharicus