= Batrachotomus =

Batrachotomus / ?bætr??k?to?m?s / is a genus of prehistoric archosaur . Fossils of this animal have been found in southern Germany and dated from the Ladinian stage of the Middle Triassic period , around 242 to 235 million years ago . Batrachotomus was described by palaeontologist David J. Gower 22 years after its discovery .

The locality where Batrachotomus lived was a swampy region and the name comes from the Greek batrachos / ???????? (frog) and tome / ???? (cutting , slicing) , which refers to its preying on the large amphibian Mastodonsaurus . In contrast with sprawling reptiles , like crocodiles , this large carnivore was very agile with locomotor superiority due to its erect stance . A remarkable feature seen on its back was a row of paired , flattened bony plates . Batrachotomus was possibly an early relative of Postosuchus , which lived during the dawn of the dinosaurs .

= = Description = =

Batrachotomus was a heavily built , large quadrupedal reptile reaching 6 metres (20 ft) in length . A trait that characterized Batrachotomus , compared to other crurotarsans , was a series of paired small plates on its back which were attached to each vertebra . These bony deposits forming scales are called osteoderms . Flattened and leaf @-@ shaped , these extended from behind the head along the column and reducing in size , ended at the tail . There is also evidence that osteoderms were present on the ventral region of the tail , as seen in Ticinosuchus ferox , and even on the flank , belly and limbs .

Like rauisuchians , Batrachotomus walked with an erect posture , although the limbs were not located directly under the trunk . The limbs were not equal in length as the forelimbs were about 70 % of the hindlimbs . The toe bones (phalanges) are poorly preserved and the only well known bone is a fifth metatarsal (bone in hindlimbs attached to the toe bones) which was hooked in shape . However , hypotheses suggest that probably each forelimb had four toes and each hindlimb five .

Batrachotomus had a tall and narrow skull estimated at 40 to 50 cm (1 @.@ 3 to 1 @.@ 6 ft) in length . It had five pairs of fenestrae (skull openings) , two pairs of which were for the eyes (called orbits) and the nostrils . Behind the orbits were two temporal fenestrae . These holes probably helped to reduce the weight of the skull and enabled the jaw to open more widely . As a typical archosaur , Batrachotomus had two antorbital fenestrae between the orbits and nostrils , and a fifth pair of small openings at the rear part of the lower jaw .

The jaws contained sharp teeth which were compressed laterally and unequal in size and shape , and this variation of tooth shape is known as heterodonty . The teeth on the premaxillae (bones at the very tip of the upper jaw) were slender , unlike those of the maxillae (the main tooth @-@ bearing bones in the upper jaw) which had a straight posterior edge . The upper jaw bore 30 teeth , with each premaxilla carrying about 4 teeth and each maxilla 11 , while the lower jaw held 22 teeth .

= = Discovery and history = =

Remains of Batrachotomus have been found in southern Germany , mainly in the Kupferzell fossil locality in northern Baden @-@ Württemberg . Fossil collector Johann G. Wegele discovered the first specimens in a 1977 excavation at the Erfurt Formation , dated from the Longobardian (late Ladinian) age . Other remains attributed to Batrachotomus have been collected in Vellberg @-@ Eschenau , about 10 km east of Schwäbisch Hall , and in Crailsheim . The most notable are from Vellberg @-@ Eschenau , which are represented by well preserved ribs and vertebrae (MHI 1895) , and evidence of forelimbs and hindlimbs (SMNS 90018) . Batrachotomus today is displayed in the Muschelkalk Museum , Ingelfingen , Stuttgart .

The fossils recovered from a marlstone remained undescribed until 1999 and palaeontologists referred to the genus simply as " rauisuchid " or " Kupferzellia " . In 1999 , palaeontologist David J. Gower described the holotype (SMNS 52970) from the 1977 excavation , which is the largest specimen of the genus , comprised by incomplete skull and postcranial materials . Anatomy of the

braincase (SMNS 80260) was made three years later , shedding light on the evolutionary relationships of the poorly known group of Rauisuchia . In 2009 , Gower and Rainer R. Schoch reported a detailed reconstruction of the postcranial skeleton for the first time .

= = Classification = =

Batrachotomus was a prestosuchid , a member of a family of carnivorous archosaurs within the larger group Rauisuchia . The family name " Prestosuchidae " was established in 1966 by American paleontologist Alfred Romer . Prestosuchids were quadrupedal reptiles , medium to large in size , characterized by erect posture , large and narrow skull and large antorbital openings .

Attention was first brought to Batrachotomus in 1993 by Michael Parrish , a palaeontologist at Northern Illinois University . Parrish hypothesized that Batrachotomus (then " Kupferzellia ") belonged to the family of Rauisuchidae , another clade of carnivorous reptiles , and species of Rauisuchus . However , the description of the braincase and a revisited cladistic analysis by Benton and Walker , showing the close relationships between Batrachotomus and Prestosuchus , led to the transfer of Batrachotomus to the family Prestosuchidae .

Sterling J. Nesbitt (2011) revised the classification of basal archosaurs , and using the most comprehensive phylogenetic analysis for this group (to date) found Prestosuchidae to be non @-@ monophyletic . The members of this clade were recovered as basal loricatan , of which Batrachotomus was found to be the most derived i.e. most closely related to the clade containing Crocodylomorpha and Rauisuchidae . Subsequent derivatives of this analysis further support this hypothesis . In a yet to be formally published revision of Heptasuchus , a medium @-@ sized (~ 5 m long) " rauisuchian " from the upper Chugwater Group of Wyoming , it was recovered as the sister taxon of Batrachotomus using a derivative of Nesbitt (2011) analysis .

The cladogram below follows an analysis by Sterling J. Nesbitt (2011) :

= = Paleoecology = =

Since 1977 , the rich vertebrate fauna found at Baden @-@ Württemberg reflect a moist region of the Middle Triassic in Germany . Along with Batrachotomus , palaeontologists recovered remains of fishes , amphibians , such as Gerrothorax and Mastodonsaurus , and even animals like nothosaurs and the distinct marine reptile Tanystropheus . Flora of the locality consisted of horsetails , ferns , cycads and conifers , suggesting that there was rich vegetation .