

= Rajasaurus =

Rajasaurus ( ' Raja ' meaning " king " ( derived from Sanskrit ) here , " king of lizards " ) is a genus of carnivorous abelisaurian theropod dinosaur with an unusual head crest . Between 1982 and 1984 , its fossilized bones were discovered by Suresh Srivastava of the Geological Survey of India ( GSI ) . Excavated from the Narmada River valley in Rahioli in the Kheda district of Gujarat , India , the find was announced as a new genus of dinosaur by American and Indian scientists on August 13 , 2003 .

Paleontologists Paul Sereno of the University of Chicago , Jeff Wilson of the University of Michigan , and Srivastava worked together as an Indo - American group to study the Narmada River fossils . The fossils represented the partial skeleton of the new species *Rajasaurus narmadensis* , which means " princely lizard from the Narmada Valley . " The fossilized bones of *Rajasaurus* have also been found in the upper region of the Narmada , at Jabalpur , in the state of Madhya Pradesh .

= Description =

*Rajasaurus* was an abelisaurid , a member of a group of theropod predators known to have lived only on landmasses that were part of the supercontinent Gondwana , such as Africa , India , Madagascar , and South America . *Rajasaurus* closely resembles *Majungasaurus* , a contemporary abelisaur from Madagascar , an island that had separated from the Indian landmass about 20 million years earlier . It was found to be an abelisaurid through a phylogenetic analysis of anatomical characteristics , and was described as a carnosaurine abelisaurid ( the subfamily including *Carnotaurus* ) because of the configuration of its nasal bones and its possession of a growth ( " excrescence " ) on its frontal bone . *Rajasaurus* is distinguished from other genera by its single nasal @-@ frontal horn , the elongated proportions of its supratemporal fenestrae ( holes in the upper rear of the skull ) , and the form of the ilia ( principle bones of the hip ) which feature a transverse ridge separating the brevis shelf from the hip joint .

*Rajasaurus* was identified from a partial skeleton including a part of the skull ( braincase ) , backbone , hip bones , parts of the hind legs and tail . This specimen , GSI 21141 / 1 ? 33 , serves as the type specimen of the genus and species . *Rajasaurus* measured about 7 @. @ 6 ? 9 m ( 24 @. @ 9 ? 29 @. @ 5 ft ) long and what is preserved of the skull shows it bore a distinctive low rounded horn , made up of outgrowths from the nasal and frontal bones .

= History of discovery =

The Narmada River in central India drains its valley from east to west , in a rift valley and eventually into the Arabian Sea after traveling 1 @, @ 312 km ( 815 @. @ 2 mi ) . Dinosaur bones have been reported from the Narmada valley since the late 19th century , including some belonging to *Titanosaurus indicus* .

The history of the fossils named *Rajasaurus* begins in 1981 . When G.N. Dwivedi and D.M. Mohabey , geologists of the Geological Survey of India , were on a mapping mission , the workers of the ACC Cement quarry at Rahioli , in Gujarat showed them smooth ball @-@ like limestone structures from the quarry . These " balls " turned out to be dinosaurian eggs . The geologists also found that the limestone bed containing the fossilized eggs was underlain by a layer of coarse sandstone and conglomerate with abundant dinosaurian fossil bones .

During the years 1982 ? 84 Suresh Srivastava , a GSI geologist at the Palaeontology Division of the GSI 's Western Region , collected large numbers of bone fossil fragments from Rahioli , and also precisely mapped the area . These fossils were taken to the Palaeontology Division at Jaipur for identification . U. B. Mathur and Suresh Srivastava , under the supervision of S. C. Pant , meticulously cleaned many of the skeletal parts ( braincase , dorsal and caudal vertebrae , sacrum , thigh bone , upper arm , shin bones , and others ) , leading to the publication of multiple research papers . There was a lull in further activity until a Memorandum of Understanding ( MOU ) was signed with Punjab University in 1994 ? 95 .

In 2001 , further research on the fossils was continued by two American scientists sponsored by the American Institute of Indian Studies , New Delhi and the National Geographic Society , U.S.A. The Americans , Paul Sereno and Jeff Wilson , started the reconstruction of the collection of dinosaur bones gathered in 1983 and 1984 . The team of scientists , after a detailed study of the maps prepared earlier by Srivastava , were able to reconstruct the partial skull , left and right hip bones , and a sacrum . They interpreted the part of a skull and a horn as resembling those of dinosaurs found in Madagascar . Fossils of *Rajasaurus* were also found near Jabalpur in Madhya Pradesh . In all , the collected fossils include a partial skull , limb bones , hip bones , and vertebrae .

Although *Rajasaurus* was formally described in 2003 , there are fossils described in 1923 that may belong to this genus . Charles Alfred Matley described *Lametasaurus indicus* in that year from specimens including an ilium , a sacrum , a shin bone , and armor scutes found at Bara Simla . *Lametasaurus* was later shown to be a chimera , and Wilson et al. suggested that the ilium and sacrum ( now lost ) were exemplars of the similarly stout *Rajasaurus* .

The discovery of *Rajasaurus* could lead to additional information on the evolutionary relationships of abelisaurids , since previously described specimens from India were mainly isolated bones . At a press conference held in 2003 on the discovery of *Rajasaurus* , Sereno stated :

The discovery , which will be put for examination before global experts , was important since it would help in adding to the current knowledge of dinosaur belonging to the family of Abelisaurid predators and adding a new angle to dinosaurs in the Indian subcontinent .

= = Palaeobiology = =

*Rajasaurus* is known only from the Indian Peninsula . At the time it was alive , the Indian landmass had recently separated from the rest of Gondwana and was moving north . While *Rajasaurus* had evolved along its own direction , it was still similar to other abelisaurids such as *Majungasaurus* from Madagascar and *Carnotaurus* from South America ; these animals descended from a common lineage .

*Rajasaurus* has been found in the Lameta Formation . This rock unit represents a forested setting of rivers and lakes that formed between episodes of volcanism . The volcanic rocks are now known as the Deccan Traps . *Rajasaurus* and sauropod fossils are known from river and lake deposits that were quickly buried by Deccan volcanic flows . Other dinosaurs from the Lameta Formation include the noasaurid *Laevisuchus* , abelisaurids *Indosaurus* and *Indosuchus* , and the titanosaurian sauropods *Jainosaurus* , *Titanosaurus* , and *Isisaurus* .

Coprolites have been recorded in the Lameta Formation , and the presence of fungi in coprolites indicates that leaves were eaten by the dinosaurs which lived in a tropical or subtropical climate . Another scientific study of similarities in egg taxa suggested close phyletic relationships that supports the existence of a terrestrial connection between dinosaurian fauna in India and Europe during the Cretaceous , and between two Gondwanan areas , Patagonia and India .

= = Cultural significance = =

In order to educate people about extinct forms of life , the Geological Survey of India installed life size fibreglass models of *Rajasaurus* and *Titanosaurus* at their Lucknow regional office . The installation is presented in an appropriate setting , with representations of plants that existed during the Mesozoic Era . Also displayed are limb bones , vertebra , eggs and coprolites of sauropod dinosaurs and fossil eggs of *Rajasaurus* collected from Gujarat and Madhya Pradesh .

A restored skull of *Rajasaurus* is a prominent exhibit in the Indian Museum at Kolkata .

Also interested in *Rajasaurus* is Aliya Babi ( of the erstwhile royal family of Balasinore ) , who became a dinosaur enthusiast after closely watching the efforts made by GSI at Rahioli to unearth the fossils , and made efforts to promote dinosaur tourism to Rahioli in order to showcase its millions of years of dinosaur heritage . She also set up a small museum at her hotel .

A Jurassic Ride *Rajasaurus* River Adventure has been launched at the Adlabs Imagica , India . The ride is inspired by Jurassic Park : The Ride located at Universal Parks .

