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Alamosaurus sanjuanensis

Giant Sauropod Dinosaur

Humerus TMM 41398-2 Femur TMM 41541-1 Javelina Formation, Cretaceous Big Bend National Park Brewster County, Texas

Alamosaurus sanjuanensis was first discovered in San Juan County, New Mexico. The rock unit in which it was found, the Ojo Alamo Formation, was named for a local trading post, the Ojo Alamo. Alamosaurus roamed over much of southwestern North America during the latest part of the Cretaceous. It became extinct at the very end of the Mesozoic Era, during the mass extinction episode that wiped out many other species at the same time. *Alamosaurus* was one of the very last of the non-avian dinosaurs in Texas.

Alamosaurus was a member of the sauropod dinosaur lineage. The sauropods were not only the largest dinosaurs but also the largest land animals ever to evolve. Only some of today's baleen whales are larger. The largest sauropods may have weighed around 50 tons. This is about 10 times more than African elephants, who are the largest land-living animals alive today.

The earliest members of the lineage were small and walked on their hind legs, leaving their hands free for other purposes. But during the course of the Mesozoic, the sauropods evolved to giant size, and had to drop to all fours in order to support their gigantic weight. At the same time, they evolved almost unbelievably long necks but retained relatively small heads. Of all the dinosaurs, they had the smallest brains compared to their body size.

Alamosaurus and the other huge sauropods were herbivores. They had small blunt teeth, which they used for cropping and stripping vegetation. The discovery of polished stones inside the ribcage in several skeletons suggests that they had a large muscular gizzard containing stones to mechanically break down fibrous plants. The stones accomplished the grinding of food instead of the teeth!

The two huge bones of *Alamosaurus* buried in the Dino Pit were cast from specimens collected from Big Bend National Park in 1971 and 1973 by Dr. Wann Langston, Jr. and a crew from the Vertebrate Paleontology Laboratory of the Texas Memorial Museum. One bone is the humerus (upper arm bone), which lies between the shoulder and elbow joints. The other is the femur (thigh bone), which extends from the hip to the knee joint. These two bones came from different individuals of about the same size.



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Crateraster mccarteri Starfish

TMM BEG 34041 Cretaceous Travis County, Texas

These starfish were found in a large block of "float" in Bouldin Creek, here in Travis County. This is one of two pieces that

were cut out of the 1200-pound slab. The starfish were first exhibited in 1936, and they have been gems of the Texas Memorial Museum's collections ever since.

These particular specimens are embedded in a type of rock known as limestone, the "Austin Chalk". This layer of rock was formed from the settling of fine layers of sediment onto the sea floor during the Late Cretaceous, about 85 million years ago.

Starfish (also know as sea stars) are invertebrates that can be found in oceans all over the world. They live in a wide range of marine environments, from rocky shores to kelp beds, tidal pools to depths of more than 9000 meters. They vary greatly in size and shape. Their size can range from that of a penny to as big as a bathtub. In fact, there are about 1800 different species of starfish alive today, and hundreds more are known from the fossil record.

The body form of a starfish is stellate (star-shaped) with central disc and typically five radiating, symmetrical, arms (rays). The dimension is measured for the center of the central disc to the tip of one of the rays. Did you know that, occasionally, a "five-rayed" starfish is born with only four rays? Variation like this occurs in all natural populations. However, it's very rare that enough individuals are preserved together for us to see this variation in fossils. Can you find the four-rayed specimen on this slab? At the other end of the spectrum there is a modern species of starfish that has 50 rays. And just to add more confusion, starfish can regenerate severed rays, or intentionally remove rays.

The robust starfish have retained much of their detailed structure on this slab but have lost all their vibrant color. Modern starfish pigments include yellow, red, purple, orange, brown, gray, and blue. Original color is only very rarely preserved in the fossil record.

Modern starfish have diverse eating habits. Some are carnivorous, eating sponges, corals or shellfish, others are scavengers and some are cannibals. Others are deposit feeders extracting their food from the mud, or suspension feeders sifting food from the water column.



Edaphosaurus pogonias Sailback

Incomplete vertebral column TMM 40005-1 Arroyo Formation, Permian Baylor County, Texas

Edaphosaurus is a distant extinct relative of living mammals.

Like *Seymouria*, another Permian fossil that can be found in the Dino Pit, it dates back roughly 280 million years. *Edaphosaurus* belongs to the great lineage known as Synapsida, which includes all living species of mammals and their extinct relatives.

Like its more famous relative *Dimetrodon, Edaphosaurus* had a sail-like fin that was supported by bones of the vertebral column. *Edaphosaurus* differs from Dimetrodon in having cross-bars on the spines that supported its fin. The function of the fin has always perplexed scientists. Some have argued that it was for thermoregulation and that the great surface area provided by the fin was used to more rapidly warm the animal to the level where it could be active. Others have argued that the fin was analogous to antlers and horns in some modern mammals, and that it was used in species recognition and courtship. Both explanations may be correct.

The redbeds of Baylor County and surrounding counties are the richest in the world for fossils of Early Permian age. These rocks hold a unique record of early synapsid history and have been visited by paleontologists from all over the world. *Edaphosaurus* is among the rarest synapsids, and most of the specimens that have been discovered consist of little more than fragments of its skeleton. Based on its teeth, it is commonly thought that *Edaphosaurus* was herbivorous, but we know little of its habits.

The *Edaphosaurus* specimen buried in the Dino Pit was cast from an original collected in 1944 by H. J. Sawin and E. Jones. The only part of the specimen that is preserved is a part of the backbone that includes some of the spines that supported the fin, but it is one of the most complete examples of *Edaphosaurus* on record.



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Geochelone sp. Giant Tortoise

Shell and partial skeleton TMM 30967-2155 Freshwater pond deposit, Pleistocene San Patricio County, Texas

Giant land tortoises like this specimen of *Geochelone* roamed the coastal plain of Texas during the Pleistocene. Although

this particular North American species is now extinct, having died out by about 10,000 years ago; it has living relatives on several islands of the world and on the mainland of Africa and South America. Probably the most famous members of the tortoise family are the giant tortoises of the Galapagos Islands, which were studied by Charles Darwin as he developed his theory of evolution. More distant and much smaller relatives of the giant tortoises still live North America, in the southwestern deserts, parts of Florida, and northern Mexico.

Tortoises are part of a larger group of animals, the Testudines (turtles). Most turtles are adapted for life in wetter environments like rivers, ponds, and the oceans of the world. But tortoises are adapted to arid environments. They are almost exclusively vegetarians, and they get all the moisture they need from the plants they eat. They rarely if ever drink water. In some settings they hibernate during the winters, while in other settings they are active most of the year. In contrast to tortoises, most other turtles are carnivorous, eating fish, insects, grubs, worms, and carrion. All tortoise species are threatened or endangered in the wild today.

We are not sure what led to the extinction of giant tortoises in North America. The change in climate at the end of the Pleistocene has been suggested, but human activity has also been implicated. In more recent years, many of the island populations of giant tortoises have been extirpated by humans, mostly by sailors who collected the tortoises for food. The introduction of rats, pigs, and dogs by humans to these islands has also had tragic effects on the slow growing turtles. Adults are generally safe, but the eggs and young are easy prey to the faster, smarter mammals.

A. H. Witte collected the specimen buried at the Dino Pit. Witte supervised the excavation, which was funded by the Work Projects Administration from 1939 to 1940. The original specimen was long displayed at the Texas Memorial Museum and is now at the Vertebrate Paleontology Laboratory.



Homotherium serum Scimitar-toothed Cat

Skull TMM 933-3582 Friesenhahn Cave, Pleistocene Bexar County, Texas

Homotherium serum, the scimitar-toothed cat, ranged throughout Texas during the Pleistocene. *Homotherium* was

a member of the felid lineage, which includes all extant and extinct cats (everything from lions to housecats) as well as the extinct saber-toothed cats. *Homotherium* was about the size of a modern lion, but it had a lighter build with long forelimbs and relatively shorter hindlimbs. These proportions indicate that Homotherium was capable of running after prey as well as leaping upon them.

The skull of *Homotherium* is characterized by its flattened and serrated upper canines and wide nasal opening. The wide nasal opening has been compared to that of a cheetah, and is thought to have allowed for maximum air intake, which is important for running after prey. The canines of *Homotherium* are not as elongate as those of the saber-toothed cat Smilodon, but were nevertheless effective weapons for killing prey.

The prey of choice were juvenile mammoths, as evidenced by more than 300 mammoth deciduous ("milk") teeth found in Friesenhahn Cave. There is no doubt that the juvenile mammoths were killed and dragged into the cave by *Homotherium*, for in addition to the skull cast for the Dino Pit, skeletal remains representing 19 adult and 13 juvenile *Homotherium* have been collected from Friesenhahn Cave, indicating that the cave was used as a den for quite some time.

A field crew, including Glen L. Evans and Grayson E. Meade, from the Texas Memorial Museum found the original specimen during excavation of Friesenhahn Cave in the summer of 1949. Its age is estimated to be about 20,000 years old. This skull is at the Vertebrate Paleontology Laboratory while complete *Homotherium* skeletons (an adult and two kittens) are on display at the Texas Memorial Museum, the exhibit hall of the Texas Memorial Museum.



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Mammut americanum American Mastodon

Incomplete skull TMM 1858-1 Pleistocene river terrace sand and gravels Live Oak County, Texas

The American mastodon has an interesting name. The name Mammut might suggest that it is a mammoth, but it is not. Instead it is a member of the mastodon lineage,

which is related to but different from the elephant lineage, which includes the mammoths. The scientific name Mammut means "earth burrower". This name traces back to the Middle Ages when European farmers found the gigantic bones of mastodons in their fields and mistakenly believed that they belonged to some kind of gigantic burrowing animals. The common name "mastodon" comes from "mastodont", which means "breast-toothed". This term refers to the cone-like cusps on the cheek teeth.

Mastodons are members of the group of mammals called proboscideans, which was once much more diverse and widespread. Only two species survive today, the African and Asian elephants, both threatened with extinction. Mammut americanum roamed widely over North America for roughly 3.5 million years before it finally became extinct, between 12,000 and 9,000 years ago. Both climatic change and human hunting have been implicated in its extinction.

The *Mammut* specimen buried in the Dino Pit was one of the last of its kind in Texas. Declining populations of Mammut were concentrated in two major areas. These were the Great Lakes and the Atlantic and Gulf Coastal Plains. In Texas they probably occupied lowland valleys and swampy areas. Stomach contents have been recovered from a few specimens and these indicate that they ate the twigs and cones of conifers, leaves, mosses, grasses, and aquatic plants. Mammut probably used its tusks to strip branches from trees upon which it fed.

The specimen buried at the Dino Pit exhibits the process of tooth replacement common to mastodons, mammoths and elephants. Over its lifetime, a proboscidean uses six sets of grinding teeth in each side of both the upper and lower jaws. As the initial set is worn, it is pushed forward by the eruption of the next larger, unworn tooth.

The original specimen was excavated by paleontologists from the Texas Memorial Museum at The University of Texas at Austin in 1939, working with support from the Work Projects Administration. Its age is estimated between 10,000 and 200,000 years old. It was long displayed at the Texas Memorial Museum, and is now at the Texas Memorial Museum's Vertebrate Paleontology Laboratory.



Mammuthus sp. (301 Congress Mammoth)

Partial skeleton TMM 43067-37 River silts and clay Pleistocene Travis County, Texas

Mammoths are members of the group Proboscidea, so named for the elongate muscular proboscis or "trunk"

which is a unique tactile (touch) sense organ. Like other members of this group, *Mammuthus* exhibits skeletal modifications for bearing great weight, including column-like limbs. *Mammuthus* is more closely related to the extant elephants of Asia and Africa than it is to the extinct mastodons like *Mammut*. Evidence for this includes features of the cheek teeth, which are specialized for grinding. The cheek teeth consist of transverse loops or plates of enamel that provide a washboard-like surface for chewing grasses. The tusks of Mammuthus are often long and curved and are found only in the upper jaw.

Mammuthus species that roamed Texas in the Pleistocene included the Columbian and Jefferson's mammoths, but not the woolly mammoth. There is some controversy as to whether the Columbian and Jefferson's mammoths are distinct species or just different populations exhibiting geographical variation. Mammoth remains have been found at several Paleo-Indian kill sites in North America. These include localities in Texas such as Lubbock Lake (Lubbock County), and the Miami Site (Roberts County). Climatic change and human hunting have been implicated in the extinction of the mammoth 11,000 years ago.

Dr. Ernest L. Lundelius, Jr. of the Vertebrate Paleontology Laboratory excavated the original specimen in 1985, with assistance from the Trammell Crow Company and Lone Star Archaeological Services. Its age is estimated to be about 15,000 years before present, based on radiocarbon dates obtained from organics in the clay immediately surrounding the bones. The skeleton is currently housed at the Texas Memorial Museum's Vertebrate Paleontology Laboratory.



Mosasaurus maximus The Onion Creek Mosasaur

Skeleton TMM 313-1 Navarro Group, Cretaceous Travis County, Texas

Mosasaurus maximus was a giant extinct marine reptile. It lived in shallow seas that covered much of Texas about 70

million years ago, during the Cretaceous Period. It is a member of the mosasaur lineage, which included many other species and achieved a worldwide distribution before becoming extinct about 65 million years ago. Their fossilized bones are fairly common across the state, and they are especially abundant in Central Texas. But skeletons as complete as this one are very rare. Some mosasaur species were small (under 6 feet long) but others evolved to huge size. This specimen is one of the larger mosasaurs, being nearly 30 feet long. Its head alone is nearly 5 feet long and its open jaws had a gape of 3 feet.

Mosasaurs lived only during the Mesozoic and are sometimes confused with dinosaurs. But lizards, snakes, and mosasaurs form their own distinctive branch of the reptilian family tree, and they are only distantly related to dinosaurs. Today the closest living relatives of the extinct mosasaurs are the members of a lizard lineage that includes the Komodo dragon and the Gila monster.

Mosasaurs were marine animals that spent virtually their entire lives in the oceans and seaways of the Cretaceous world. Unlike modern sea turtles, which come out on dry land to lay eggs, mosasaurs gave birth in the water to live young. For reasons that are not fully understood, the ancestors of the mosasaur lineage left the dry land and adapted to life in the seas.

Mosasaurs quickly evolved to tremendous size in the environment of the Cretaceous seas. With long snake-like tails and paddles for limbs, they were probably excellent swimmers, and they reached all of the oceans and seas of the Cretaceous world. Their large pointed teeth leave little doubt that they were predatory, hunting other marine animals. Several known specimens preserve possible stomach contents, which indicate that mosasaurs ate other vertebrates (sharks, bony fish, turtles, other marine reptiles, etc.). The shells of extinct molluscs known as ammonites have also been found with holes interpreted as bite marks made by mosasaurs.

The specimen buried at the Dino Pit was cast from a beautiful skeleton found in 1935 in Travis County, along the banks of Onion Creek. W. Clyde Ikins and John Peter Smith, geology students at The University of Texas at Austin, discovered the skeleton. They alerted paleontologists at the Texas Memorial Museum, who excavated the skeleton. It was first put on public display at the Texas Centennial in 1936. The mounted and reconstructed skeleton is currently on display at the Texas Memorial Museum, the exhibit hall of the Texas Memorial Museum.



Osteopygis sp. The Zilker Park Turtle

Incomplete carapace and plastron TMM 43190-1 Edwards Formation, Cretaceous Travis County, Texas

Turtles are an ancient lineage of reptiles that arose long before the dinosaurs appeared and they have survived until the

present day. Most turtles live on land or in freshwater streams and lakes, but some have become adapted to life in the oceans. *Osteopygis* is one such marine species. It lived in the shallow seas that covered much of Texas during the Cretaceous, living together with animals like *Mosasaurus* and *Polyptychodon*. *Osteopygis* may have grown to about 5 feet in length, but it was by no means the largest of the Cretaceous turtles. There were others that reached more than twice the size of *Osteopygis*, and skeletons of these giants have also been found in Texas.

The specimen that is buried at the Dino Pit was discovered by a hiker in Zilker Park. The specimen was collected by paleontologists from the Vertebrate Paleontology Laboratory of the Texas Memorial Museum. Much of the bottom half of the shell (plastron) and a few pieces of the shell's upper half (carapace) were preserved in this specimen. It is unusual because it was found on the same layer of rock that preserved several nearby dinosaur tracks. If the entire shell and skeleton had been found, it would have represented a large animal, weighing several hundred pounds. Like other marine turtles, it probably ate fish, squid, and other marine animals.



Polyptychodon sp. The Shoal Creek Plesiosaur

Skeleton TMM 42644-2 Eagle Ford Group, Cretaceous Travis County, Texas

Polyptychodon is a member of the plesiosaur family, which constituted a group of reptiles that were adapted to life in the

shallow seaways that covered much of Texas 90 million years ago. The plesiosaurs form their own distinctive branch of the reptile family tree. Although commonly mistaken for dinosaurs, the plesiosaurs are only distant relatives. They were also very different from the mosasaurs, which formed another lineage of giant aquatic reptiles. The plesiosaurs became extinct near the end of the Cretaceous Period.

The arms and legs of plesiosaurs were modified into flippers that they used to 'fly' through the water, much like modern sea turtles do. Some plesiosaurs had long necks and small heads, while others had short necks and very large heads, and many grew to gigantic size. They had long, sharp teeth characteristic of animals that catch and eat fish. Together with the mosasaurs, they were among the dominant predators of the Mesozoic oceans. Although they were reptiles, they probably spent nearly all of their lives in the water.

Dr. J. R. (Bob) McDonald, an Austin dentist who was looking for shark teeth along Shoal Creek, discovered the specimen buried in the Dino Pit. He reported the find to paleontologists at the Texas Memorial Museum's Vertebrate Paleontology Laboratory, who collected it and put it on display in the Texas Memorial Museum, in the early 1990's.



Quetzalcoatlus northropi The Texas Pterosaur

Wing bones (humerus, radius, ulna, carpals, metacarpals, phalanges) TMM 41450-3 Javelina Formation, Cretaceous **Big Bend National Park** Brewster County, Texas

Quetzalcoatlus was the largest flying creature ever to evolve. Its wingspan was somewhere around 40 feet, which is as wide as some small jet fighters. But it was light as a kite, with hollow bones that were almost paper-thin. Quetzalcoatlus is a member of the extinct pterosaur lineage. Pterosaurs (pronounced tair-o-saurs) lived during most of the Mesozoic Era and diversified into a tremendous array of different forms. Often mistakenly called "flying dinosaurs", the pterosaurs are not members of the dinosaur lineage. Instead they are a side branch from the main stem leading towards the dinosaurian family tree and are only "cousins" to the dinosaurs.

Quetzalcoatlus and most other pterosaurs were probably predators and scavengers. Several pterosaur specimens contain the skeletons of fish in their bellies, and most of these were found in marine rocks. But many other pterosaurs, including Quetzalcoatlus, were discovered in rocks formed by lakes and streams, which indicates that they flew over dry land and probably hunted terrestrial (land-living) animals as well.

The wings of pterosaurs were different from the wings in modern birds and bats. In birds, the feathers of the wing are supported by the first three fingers of the hand (the thumb, index, and middle fingers). In bats, the thumb is free and a wing membrane of skin is webbed between the remaining fingers and along the body to the legs. But in pterosaurs, the wing was made from a skin membrane that was supported by one very long finger, the one corresponding to our "ring-finger." Astonishingly, flight evolved independently in pterosaurs, birds, and bats.

Quetzalcoatlus was the largest and also one of the last of the pterosaurs. It soared over Texas right up until the end of the Cretaceous Period, looking down on dinosaurs like Alamosaurus and Tyrannosaurus. It did not survive in the great extinction event that marked the end of the Mesozoic Era.

The specimen buried in the Dino Pit was cast from a specimen discovered in 1971 in Big Bend National Park by a graduate student named Douglas Lawson, who was working on his masters degree in the Department of Geological Sciences at The University of Texas at Austin, under the direction of Dr. Wann Langston, Jr.



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Rooneyia viejaensis Early Primate

Skull TMM 40688-7 Vieja Formation, Eocene Presidio County, Texas

Rooneyia viejaensis is an omomyid, a member of a prosimian primate lineage that dates back approximately 55 million

years. Like other early primates, *Rooneyia* was small. It was about the size of the modern tarsier, which inhabits the forests of Indonesia and the southern Philippines; and the galago, which inhabits the forests of Africa. Only a single specimen of *Rooneyia* has been discovered, and only the skull was preserved. Without the rest of the skeleton, it is difficult to be certain how it made its living, but like most other small primates it was probably arboreal, spending its life in the trees.

Primates are very rare in the fossil record. The tiny specimen that is buried at the Dino Pit is 37 million years old and among the most complete and best preserved primate skulls ever discovered in North America. Based on the size of its orbits (eye-sockets), *Rooneyia* was probably active during the daylight hours. *Rooneyia* has broad, flattened cusps on its teeth, which may indicate a diet that was rich in fruit. One of the unique features of this specimen is that some of the bones surrounding the brain had weathered away to reveal what is referred to as a natural "endocast." An endocast is a replica of the brain that it is formed by sediments that fill the space that was occupied by the brain in the living animal. In animals with large brains, the skull records much of the detail of the brain's surface, much like the shell of a walnut or a pecan nut. The infilling of sediment, now turned to rock, takes on the shape of the brain.

Dr. John A. Wilson, who is the founder of the Vertebrate Paleontology Laboratory of the Texas Memorial Museum, discovered this specimen in 1964. Dr. Wilson has now spent more than 60 years looking for fossils all across Texas. Although *Rooneyia* is a tiny fossil, it was the find of a lifetime for Dr. Wilson.



Seymouria baylorensis Early Land-dwelling Vertebrate

Skeleton TMM 43291-1 Clear Fork Formation, Permian Baylor County, Texas

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Seymouria was a small animal that lived roughly 280 million years ago in Texas and adjacent regions. It was a

land-dwelling animal that lived in what were then arid regions of North Texas. It is an important fossil for paleontologists because it is probably a close relative of both the lineage that include today's mammals and the lineage that includes living reptiles. This early, distant part of the family tree of land animals is not well understood, so *Seymouria* has received a lot of attention by scientists who are trying to reconstruct the tree of life.

With short limbs and a thick body, *Seymouria* was not very agile or very fast. To move around on land, it probably relied on undulating its backbone from side to side, using its limbs as props against the ground. It was probably cold-blooded and had a rather small brain. Judging from its teeth, it may have had a varied diet, subsisting primarily on insects, small vertebrates, and carrion.

The specimen buried in the Dino Pit was collected in 1917 from near the famous Craddock Bone Bed by paleontologists from the US National Museum of Natural History, a part of the Smithsonian Institution. The original specimen (USNM 9140) has been periodically placed on display in Washington DC.



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Stantonoceras solisense Ammonite TMM UT 53002 Cretaceous Williamson County, Texas

This ammonite was found by Mr. Bill Jolley in Williamson County, Texas. It was generously donated for research because it is a better example of the species than the actual "type"

specimen. A type specimen is the unique, official reference specimen for a species or genus.

Ammonites are invertebrates that can no longer be found in oceans today, they are extinct. They looked very similar to the living (extant), chambered, *Nautilus*, but are more closely related to squid. They lived on continental shelves and deep ocean environments and were prolific until the end of the Cretaceous. At that point they became extinct. *Nautilus* survived the stresses that led to the extinction of the ammonites. Why did they survive? We really are not sure; some people have suggested subtle differences in lifestyles or hatchery location of their larvae.

Coiling styles of ammonites varied, this example is coiled in one plane others coil in two planes. This specimen is quite tightly coiled others are loosely coiled. In some each new coil covers the previous one so that you can only see the last whorl, called involute coiling and this ammonite is of that involute coiling style.

Within the coil is a series of chambers, the animal actually lived in the very last, the outermost, chamber. The chamber walls (septa) were connected with a tube (siphuncle) that allowed the animal to regulate its buoyancy by controlling gases in each chamber. A little bit like regulating a hot air balloon, except in the case of the ammonite control is within a water column and not the atmosphere.

These chambers have been very useful to paleontologists because the way the chamber wall attaches (sutures) to the outer shell has changed in complexity over time. This suture pattern is often preserved in the ammonite fossil. Paleontologists can identify particular species with the help of these suture patterns. The patterns evolve quite rapidly and become a proxy for time. Certain patterns evolved after others and that allows us to place the species in order, to date them relative to each other.



Tyrannosaurus rex Giant Theropod Dinosaur

Partial upper jaw and teeth TMM 41436-1 Javelina Formation, Cretaceous Big Bend National Park Brewster County, Texas

Tyrannosaurus was one of the largest of the giant predatory dinosaurs, although a few newly discovered species may have been a bit larger. *Tyrannosaurus* and its carnivorous relatives are members of the theropod branch of the dinosaur family tree. Their large, curved, serrated teeth are built like steak knives and are designed for tearing flesh. There is no doubt *Tyrannosaurus* ate meat, but there is still some debate over whether it was a predator, a scavenger, or both. Like all predatory dinosaurs, *Tyrannosaurus* walked only on its hindlimbs. Its forelimbs were unusually tiny and their function has always been a mystery.

Tyrannosaurus was one of the last non-avian dinosaurs in Texas, and lived in the same environment as Alamosaurus and Quetzalcoatlus. Like these creatures, *Tyrannosaurus* became extinct at the very end of the Cretaceous (65 million years ago) in the great extinction event that killed off many other species. The closest living relatives of *Tyrannosaurus* are modern birds.

Tyrannosaurus roamed across western North America, but only a few rare bits and pieces of its skeleton have been found in Texas. The partial upper jaw buried in the Dino Pit is just a small piece of the skeleton, but it is nevertheless one of the most complete pieces of a *Tyrannosaurus* ever found in Texas. It was discovered in Big Bend National Park in 1970 and excavated by paleontologists at the Texas Memorial Museum's Vertebrate Paleontology Laboratory.

The fossils in the Dino Pit are reproductions of actual specimens found in Texas by scientists and students at The University of Texas at Austin's Texas Memorial Museum. They were reproduced by the staff of the Vertebrate Paleontology Laboratory. The links below give more information about each specimen.

Late Pleistocene Fossils (500,000-10,000 years before the present)



Permian Terrestrial Fossils (280 million years before the present)



620h A. Haliano <u>Seymouria baylorensis</u> Early Land-dwelling Vertebrate



<u>Edaphosaurus pogonias</u> Sailback