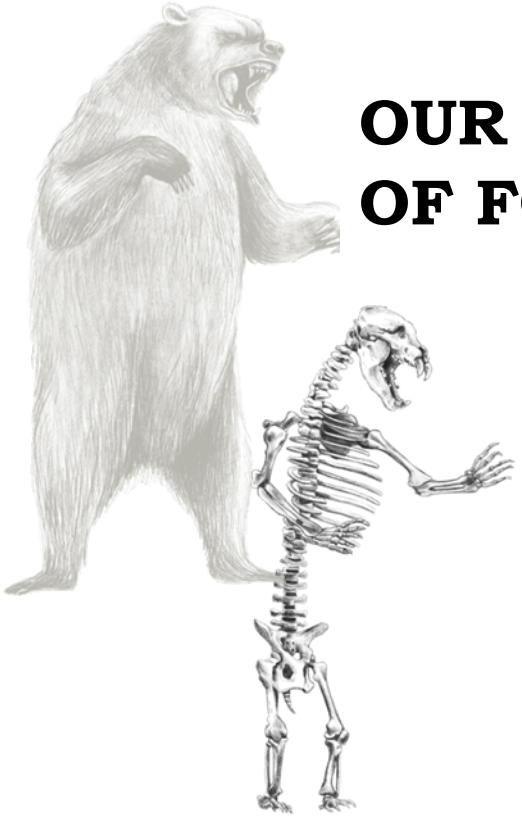
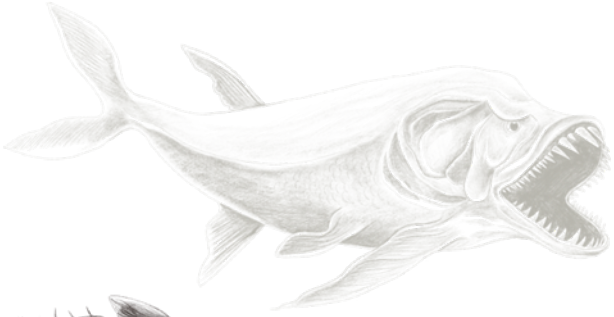
Evolve

SPIRITS BAR

OUR TREASURE LIST OF FOSSILS





Paddlefish

Ref. 1

Polyodon Spathula
United States (Kemmerer, Wyoming)
Cretaceous Period
65 – 150 million years ago

The Paddlefish was a ray-finned fish, characterised by a long, paddle-like snout with small barbels, a large mouth and tiny teeth. It was a primitive fish, having barely evolved since the earliest fossil records of the Late Cretaceous Period. Today there are just two descendants of this fish, still with the same name and found in America and China. The Chinese Paddlefish is critically endangered.

Sword-Ray

Ref. 2

Xiphactinus Audax
United States (Kansas), Canada, Australia
Cretaceous Period
65 – 150 million years ago

Growing up to six metres in length, the Sword-Ray was one of the largest bony fish of the Late Cretaceous Period and is considered to be one of the most fierce and powerful sea predators of its time. Its strong tail and wing-like pectoral fins afforded this marine predator formidable strength and impressive speed. Its upturned jaw was lined with giant, fanglike teeth that could easily trap sea birds and whole fish, up to almost two metres long.

Shield Snout

Ref. 3

Aspidorhynchus
Europe, including England
Jurassic Period
150 – 200 million years ago

The Shield Snout was slender and agile, growing to around 60 centimetres in length with heavy scales, a symmetrical tail and long tooth-lined jaws. Its upper jaw was longer than its lower jaw and featured a toothless spike on the end - a rather intimidating snout. However, it remains uncertain as to why the snout is elongated and thin. It may have been an aid in striking at fish either with a direct thrust or a side-to-side slashing motion like a modern-day swordfish.

Green River Fish

Ref. 4

Phareodus Encaustus
United States (Fossil Lake, Wyoming)
Paleogene Period
25 – 65 million years ago

Phareodus Encaustus was a freshwater fish that can be distinguished by its long pectoral fin and large pointed teeth. It was most likely carnivorous, as the scales of smaller fish have often been found preserved in the stomach of similar specimens. It has modern-day relatives found in Central-South America and Southeast Asia.

Ray-Finned Fish

Ref. 5

Gyrodus
Germany (Solnhofen, Bavaria)
Jurassic Period
150 – 200 million years ago

Gyrodus was an extinct form of ray-finned fish with a small- to middle-sized body that was flat and almost circular in shape. It lived in shallow water and had round, flattened teeth which had adapted to crunch food such as molluscs and crustaceans. Over time, Gyrodus specimens have been found throughout Europe, North Africa and some regions of North and Central America.

Small Unknown Bird

Ref. 6

Jurassic – Cretaceous Periods
65 – 200 million years ago

The evolution of birds began in the Jurassic Period, with the earliest birds derived from a group of dinosaurs characterized by hollow bones and three-toed limbs. Four distinct lineages of bird survived the Cretaceous-Tertiary extinction event 66 million years ago, giving rise to ostriches and their relatives (the Palaeognathae), ducks and their relatives (the Anseriformes), ground-living fowl (the Galliformes), and "modern birds" (the Neoaves).

Unknown Turtles

Ref. 7 and 8

Jurassic – Cretaceous Periods
65 – 200 million years ago

The precursors of modern turtles and tortoises first appeared in the late Triassic Period, roughly 200 million years ago. However, exactly what group of reptiles they descended from remains one of evolution's puzzles. Marine turtles, as we know them today, gained an evolutionary advantage when a large number of ancient crocodile ancestors died out 145 million years ago. Modern marine turtles, such as the green sea turtle, were able to evolve when many of the reptiles that hunted their ancestors died out.

Sea Scorpion

Ref. 9

Eurypterus Remipes
United States (New York)
Silurian – Permian Periods
250 – 440 million years ago

Eurypterids were a group of arthropods which predated the earliest fish species. There were approximately two dozen types, ranging in size from 20 centimetres to 2.5 metres long. They were fierce predators and lived in the warm shallow water of both seas and lakes. Although popularly called "sea scorpions", only the earliest eurypterids were marine, with many later forms living in brackish or fresh water. They were also not true scorpions. Their fossils are found all over the globe.

Tortoise

Ref. 11
(Ref. 10 not displayed)

Stylemys Nebrascensis
United States (South Dakota)
Paleogene Period
25 – 65 million years ago

This giant dry land tortoise belongs to the genus Stylemys (meaning “pillar turtle”). Whereas turtles have a flat shell and are primarily aquatic reptiles, tortoises have heavy dome-shaped shells and are terrestrial (land) animals. A tortoise such as this one was a herbivorous animal with primitive jaw muscles. The curved shape at the lower end of the shell indicates that this particular specimen was a male.

Green River Fish

Ref. 12

Phareodus Testis
United States (Fossil Lake, Wyoming)
Paleogene Period
25 – 65 million years ago

Within the Green River Formation of southwest Wyoming in the area known as Fossil Lake, two distinct zones of very fine-grained mudstones are particularly noted for preserving a variety of complete and detailed fossils. The Wyoming Fossil Lake fish fossils comprise a range of extinct freshwater fish from the Paleogene Period. A number of the fish species are also found in similarly aged deposits in Australia, Europe and South America.

Bony, Ray-Finned Fish

Ref. 13

Diplomystus Dentatus
Cretaceous Period
65 – 150 million years ago

Bony fishes of the class Osteichthyes are characterised by a bony skeleton. Ray-finned fishes are the dominant bony fish group, classified as ray-finned because their fins are webs of skin supported by bony or horny spines (“rays”). The diplomystus genus of fish, of which there are seven distinct species, is distantly related to today’s herrings and sardines.

Ray-Finned Fish

Ref. 14

Paralepidotus Ornatus

Austria (Hallein, Salzburg)
Triassic Period
200 – 250 million years ago

Paralepidotus Ornatus was a prehistoric fish species commonly found in Europe. Adults could grow up to 50 centimetres in length. They are thought to be slender, fast-swimming fish that inhabited open waters and fed on crustaceans when they were young. However, as adults, the fish moved towards shallow banks where they swam slowly near the sea bed and fed on molluscs.

Giant Pig Skull

Ref. 15

Archaeotherium Ingens
United States (Dakota)
Paleogene Period
25 – 65 million years ago

Archaeotherium Ingens was a large predatory animal found in North America. It stood at 1.2 metres tall, roughly two metres long and could weigh up to 270 kilograms. Although comparable to a modern-day pig, it was more closely related to hippopotamuses and whales. It had a large fanged jaw and distinct bumps on the side of its head. While its brain was relatively small, the Archaeotherium Ingens displayed prominent olfactory lobes which suggests it had strong sense of smell.

Mud Crab

Ref. 16

Harpactocarinus Punctulatus
Italy (Monte Baldo Mountain Range)
Paleogene Period
25 – 65 million years ago

Harpactocarinus Punctulatus is an extinct species of carnivorous mud crab that lived during the Paleogene Period. Fossils in this genus have been found in many parts of the world such as Iran, Europe, Turkey, Mexico, United States and New Zealand.

Cave Bear Feet

Ref. 17 and 18

Ursus Spelaeus
Russia (Ural Mountains)
Quaternary Period
0 – 2.6 million years ago

Ursus Spelaeus fossils are found in caves throughout Europe and Asia. They have a similar skeleton to those of modern-day brown bears, with the same solid frame and strong heavyset legs. A large male bear is estimated to have weighed up to 500 kilograms and could grow to over two metres tall when standing. The species became extinct roughly 24,000 years ago during the Last Glacial Maximum, when global icesheets last reached their maximum volume.

Sea Urchin

Ref. 19

Cidaris Coronata
Germany
Jurassic Period
150 – 200 million years ago

Sea Urchins are part of a much larger group of animals known as the Echinoderms (“spiny-skins”), which also includes starfish and sea cucumbers. Sea urchins move slowly by means of hundreds of tiny, transparent, adhesive “tube feet” and feed primarily on algae but also eat slow-moving animals.

Middle Lizard

Ref. 20

Mesosaurus
Brazil
Permian Period
250 – 300 million years ago

Mesosaurus was a reptilian creature whose remains have been found in southern Africa and South America, suggesting it was present when the two regions were connected in one large prehistoric continent. Mesosaurus was a small freshwater reptile which inhabited inland lakes. It had a long thin body which could grow up to one metre long.

Trilobite

Ref. 21

Paraceraurus Exsul
Russia (St. Petersburg)
Ordovician Period
440 – 480 million years ago

Now extinct, the Paraceraurus Exsul was a sea creature which resembled the modern-day horseshoe crab. They are thought to be one of the earliest organisms on earth to have highly developed vision. Remains have been found in areas of Europe, North America and China. They could reach up to 16 centimetres in length.

Claudiosaurus

Ref. 22

Claudiosaurus Germaini
Madagascar
Permian Period
250 – 300 million years ago

Claudiosaurus Germaini has been likened to the modern-day marine iguana. It was most likely an amphibious animal with a small head, long neck and long tail. It could reach up to 60 centimetres in length and is thought to have inhabited coastal areas or the banks of inland lakes.

Crinoids

Ref. 23

Encrinus Liliiformis
Germany (Alverdissen, North Rhine-Westphalia)
Triassic Period
200 – 250 million years ago

Although it resembles a plant with long stems and flower-like tips, Encrinus Liliiformis was a Crinoid similar to a sea urchin or sea cucumber. It was an aquatic animal with a hard crusted, spiny surface. The flower-like crown on top would open to feed on prey such as plankton. Encrinus Liliiformis is just one of hundreds of different Crinoid species that have been identified worldwide.

Oreodont

Ref. 24

Merycoidodon
United States (Dakota)
Paleogene Period
25 – 65 million years ago

Merycoidodon was a prehistoric herbivore that lived in North America. The size of a sheep but resembling a pig, the Merycoidodon had short legs and a long body of approx. 1.4 metres. It had strong teeth that enabled it to chew the tough fibrous plants which formed a large part of its diet. A close look at this specimen shows the fossilised remains of a baby Merycoidodon still inside the mother's womb.

Dinosaur

Ref. 25

Grallator (Unknown Dinosaur)
United States (Massachusetts)
Jurassic Period
150 – 200 million years ago

Footprint-like fossils with unknown origin are called a “grallator”. They are often attributed to dinosaur footprints of three toes, most likely made by a two-legged, meat-eating dinosaur. Although only three toes appear imprinted, it has been suggested that some grallator fossils may be attributed to four- or five-toed dinosaurs. Fossils like this one are commonly found in North America but similar grallators have been found on almost every continent.

Mammoth Tusk

Ref. 26

Mammuthus Primigenius
Neogene – Quaternary Periods
0 – 25 million years ago

A mammoth is any species of the extinct genus Mammuthus, trunked mammals related to modern elephants. Unlike elephant tusks, mammoth tusks (especially those of woolly mammoths), twist like a corkscrew. The left and right tusks twist in opposite directions. Mammoths have two sets of tusks. The first set, called the milk tusks, are very small and are present when mammoths are six months to one year old. The second set of tusks is permanent. The last Mammoth species to emerge, the woolly mammoth, developed about 400,000 years ago in East Asia, with some surviving on Russia's Wrangel Island in the Arctic Ocean until as recently as 4,000 years ago.

Cave Bear

Ref. 27

Ursus Spelaeus
Russia (Ural Mountains)
Quaternary Period
0 – 2.6 million years ago

Ursus Spelaeus fossils are found in caves throughout Europe and Asia. They have a similar skeleton to those of modern-day brown bears, with the same solid frame and strong heavyset legs. A large male bear is estimated to have weighed up to 500 kilograms and could grow to over two metres tall when standing. The species became extinct roughly 24,000 years ago during the Last Glacial Maximum, when global icesheets last reached their maximum volume.

Triceratops Nose Horn

Ref. 28

Ceratopsian – Triceratops Horridus
United States (Montana)
Cretaceous Period
65 – 150 million years ago

A Triceratops nose horn such as this one is a rare find. While the dinosaur had just one horn on its nose, it also had two horns on its brow, which are typically found more frequently. A Cretaceous dinosaur such as Triceratops would use its horns for defence against other predatory dinosaurs such as Tyrannosaurus Rex. In addition to its horns, the Triceratops also had a 1.8 metre-wide bony neck frill which may have provided protection to the dinosaur in times of attack.

Trilobite

Ref. 29

Acadoparadoxides
Morocco
Cambrian Period
500 – 550 million years ago

This extinct species of trilobite resembles the present-day horseshoe crab. It has a solid exoskeleton to protect its body, much like a crab's shell. Attached to its body were many multi-joined legs. Acadoparadoxides trilobites are also recognised for being one of the first organisms on earth to display highly developed sight due to their compound eyeballs.

Big Tooth Shark Teeth

Ref. 30

Carcharocles Megalodon
United States (South Carolina)
Neogene Period
2.6 – 25 million years ago

Perhaps one of the most fierce predators in Earth's history, the Megalodon had hundreds of serrated teeth in its enormous jaw. It is sometimes referred to as the "Big Tooth" shark as its teeth could reach the size of 12 centimetres. It is suggested that the Megalodon could grow to as long as 15 metres and weigh up to 20,000 kilograms.

Ammonite

Ref. 31

Cleoniceras Cleon
Madagascar
Cretaceous Period
65 – 150 million years ago

These spiral-shaped shells were named “ammonite” as they resembled the coiled horns of a ram. The Egyptian god Ammon was often depicted with rams horns on its head, which prompted Pliny the Elder of Ancient Rome to name the fossilised shells after the god. This specimen has been split and polished to show the beautiful natural patterns that form inside the shells, which originally housed a squid-like creature.

Echinoid “Sand Dollar”

Ref. 32

Scutella Faujas
France
Neogene Period
2.6 – 25 million years ago

Echinoid fossils such as these have been found all over the world in many different marine environments. They are related to the modern-day sea urchin and some species are thought to have originated up to 450 million years ago. Echinoids often had a hard shell covered with knobs to which spines were attached. Both the spine and the covering form the main part of the fossil.

Dinosaur Egg

Ref. 33

Saltasaurus
Uruguay
Cretaceous Period
65 – 150 million years ago

First discovered in Argentina, the Saltasaurus was a long-necked herbivorous dinosaur that could grow up to 12 metres tall. It was an unusual dinosaur with short legs, a long body and hundreds of tightly packed bones which formed armour-like plates across its back. This armour is thought to have developed on a dinosaur embryo while inside the egg. Nests would hold an average of 25 eggs, some of which have been found with fossilised Saltasaurus embryos inside.

Sea Scorpion

Ref. 34

Eurypterid Remipes
United States (New York)
Silurian Period
415 – 450 million years ago

The Eurypterid Remipes was a marine predator that would catch its prey on the sea, lake or river floor. Its strong pincers allowed it to snare its prey and hold it in a firm grip. It is has been suggested that the tail tip may have been venomous. Although informally called “sea scorpions”, they were not true scorpions and only the earliest ones lived in water. Their fossils are found all over the globe.

Petrified Wood

Ref. 35

United States (Arizona)
Triassic Period
200 – 250 million years ago

This petrified wood log slice shows remnants of the exterior bark still present. It originates from the Arizona Petrified Forests, which are known to have fossilised during the Triassic Period. Petrified wood is fossilised vegetation that has completely transitioned to stone. Commonly, the organic material is replaced with minerals such as quartz.

Ammonite Cluster & Ammonite

Ref. 36 and 37

Ammonoidea
36. Madagascar and 37. Russia (Ulyanovsk)
Jurassic Period
150 – 200 million years ago

Ammonites were a squid-like species with long tentacles. They lived inside coil-shaped shells and would propel themselves through water by shooting jets of water from their bodies. Smaller ammonites grew to 23 centimetres but the larger specimens could grow over one metre across. They first appeared roughly 400 million years ago and became extinct 65 million years ago. Today they are one of the most common fossils found as either multiples (cluster) or singular.

Trilobite

Ref. 38

Acadoparadoxides
Cambrian Period
500 – 550 million years ago

Trilobites have no known direct descendants, but their closest living relatives are the chelicerates (a group of arthropods that includes scorpions, mites, spiders, horseshoe crabs, sea spiders, and ticks). Their fossil records date back 521 million years and because they enjoyed a wide diversity and possess an easily fossilized exoskeleton, they left an extensive fossil record, with some 17,000 known species.