21 Mind-Blowing Now-Extinct Lifeforms - mental_floss on YouTube (Ep.51)

List Show
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=====Intro=====

Hi, welcome to Mental Floss on YouTube. I'm Emily Graslie of The Brain Scoop sitting in the Chicago Field Museum and today we're going to talk about some mind-blowing and unfortunately (and sometimes not so unfortunately) extinct lifeforms.

=====21 Now-Extinct Lifeforms=====
It wouldn't be right to start off talking about anything but the earliest evidence of life itself, which are layered structures called stromatolites. Stromatolites occurred when early bacteria and microbial life formed mats that turned into sedimentation on the bottom of the ocean some 3.5 billion years ago. So life began! But not a lot else happened for the next three billion years, so let's fast forward to trilobites.

Trilobites! These early arthropods--aka invertebrates with hard bodies, like our modern day lobsters and spiders--are some of the most diverse forms of early life on the planet. Trilobites were around for hundreds of millions of years; from about 521 million years ago to up to 250 million years ago, before they all died out in the Permian mass extinction. But we know of more than 20,000 different species of trilobites today.

To start off a list of things I am pretty glad no longer exist are the eurypterids, which were giant sea scorpions, and we're talking about invertebrates that were around eight feet or two and a half meters in length. That's the size of a crocodile! These predatory cannibals show up in the fossil record around 460 million years ago, and thankfully died off around 248 million years ago.

It wouldn't be right to glorify history, so let's talk about how some early life forms subsisted, like this poop-eating snail. This early gastropod from the Silurian period existed about 443 to 419 million years ago, and when there's not a lot of food around, you go to what's reliable, in this case, feces. This early mollusk has been fossilized attached to the anal end of a crinoid, a simple kind of animal that looks and acts like a plant. And here it shall be forever frozen in time as evidence of its dirty poop-eating habits.

The Dunkleosteus was one of the largest plate-skinned armored fishes ever to live, and it swam around 380 to 360 million years ago. Scientists here at the Field Museum have concluded that it had a bite force comparable to that of *T. Rex* and our modern-day crocodiles. It would've used up to 1,100 pounds of force and closed its mouth so quickly that it would have created suction in order to draw in its prey and oh my god I am so glad they don't exist anymore.

Another ancient ancestor we owe a lot to is the tiktaalik, also known as a fishapod. This ingenious creatures serves as a turning point in the evolution of life because at about 375 million years ago, it learned how to walk onto land. This ultimate grandfather of tetrapods was half fish and half amphibian, and there is evidence that it had gills as well as lungs.

If we're going to be talking about early life forms, I have to make a mention of the Tully monster. This unique soft-bodied invertebrate lived about 300 million years ago, and so far is unique to the Illinois region, so naturally they went ahead and made it the state fossil. The Tully monster is unique because of its weird cuttlefish-like tail, its proboscis with teeth, and its adorable protruding little eyeballs.

Edaphosaurus, which you may recognize, was an early synapsid, which is kind of like an early mammal-like reptile. They existed from around 303 to 275 million years ago, and are most notable for their gigantic vertebral spine. Unique to edaphosaurus are the crossbars on these spines. Nobody can quite make up their minds what they were used for, and debates arise on whether or not they were used for food storage or thermoregulatory reasons.

Another animal I'm increasingly glad no longer exists is the Helicoprion, an ancient shark from the early Triassic that lived around 250 million years ago. Not much is known about this terrifying creature other than instead of normal teeth, it essentially had a circular saw growing out of its mandible. Scientists refer to this as a tooth whorl and provided a never-ending regeneration of permanent teeth.

We couldn't very easily have a list about mind-blowing now-extinct life forms without at least giving a nod to the *Tyrannosaurus Rex*, specifically this lady behind me, who is the largest and most complete example of her species ever to be discovered, making her one of the largest land predators to ever walk the planet. You can't tell me that isn't mind-blowing.

On the subject of unbelievably gigantic predators, we can't help but talk about the pterosaurs, especially this one, Quetzalcoatlus, which stood as tall as a giraffe and had a wingspan up to forty feet. As previously mentioned in the 50 Common Science Misconceptions video, pterosaurs were lizards, not dinosaurs or birds, thus becoming the closest living thing to a dragon as ever existed.

Fast-forwarding in time, we've got weirdos like interatherium, a moderately-sized grazing animal that has hooves but looks like a squirrel and roamed the prairies around 65 to 33 million years ago.

Rodhocetus was a carnivorous mammal from about 40 million years ago. Fossil evidence suggests that this animal was able to move between land and water. It had a fused pelvis and mobile leg bones. Scientists know that modern whales are closely related to artiodactyls, even toed ungulates like deer.

You may have also heard of terror birds, and I'm sure from the name you can imagine the implications. These apex predators roamed the planet from 62 to two million years ago, and many of them stood between three and nine feet tall. They were flightless, but this loss of mobility only seemed to motivate them to become as intimidating as possible, at least superficially. It's actually thought that, depending on the species, they subsisted mostly off of small rodents and lizards.

Another well-known but classic relative of our collective past is *Australopithecus afarensis*, like our friend Lucy here, looking stunning at a ripe old age of 3.2 million years old. *A. afarensis* survived on our planet for more than nine thousand years, which at this point is more than four times as long as our own species has been around. But at least we have pizza delivery.

If you've ever been curious about the difference between a mammoth and a mastodon, then the easiest way to tell is by taking a look at their teeth. Mammoths have teeth like our modern-day elephants, but the teeth of a mastodon have high peaks and ridges, which makes sense because mastodon is Greek for breast or nipple tooth. We were still hunting and eating these guys up until about ten thousand years ago.

Another notable and difficult-to-ignore ice age mammal is megatherium, the giant ground sloth. I bring these guys up because they are one of the largest land mammals to ever live, and we are still feeling the negative effects of their extinction today. Big animals mean big poop, so the sudden decrease in distributed fecal matter means there's a lack of nutrients in the soil, like phosphorus, which helped to promote healthy forest growth.

The Irish elk is another one of these giant ice age mega-fauna to disappear from about 11,000 years ago. Although it's not entirely certain if it was due to climate change or over-hunting by that pesky

species *Homo sapiens*. Irish elk is a bit of a misnomer, since they were still found in parts of North America and they compare more favorably to deer than elk, but, true to their mega-fauna nature, they had racks that measured up to twelve feet across.

The passenger pigeon is worth noting because of the sheer improbability of its extinction. It was the most abundant bird species to ever exist and gigantic flocks would sometimes take fourteen hours to pass overhead, their feces raining down like snow. Because of the European invasion of North America and our insatiable urge to fire off bullets into large herds of animals, the passenger pigeon was considered extinct in 1914.

The pig-footed bandicoot is the cutest marsupial to ever have walked on one hoof. It had cloven hooves in the front and a single elongated toe in the back. A 19th century naturalist described its locomotion "like a broken-down hack in a canter, apparently dragging its hind quarters behind it." The poor bandicoot was considered extinct in the 1950s after over-farming in Australia.

Even though they're gone, scientists are trying to bring back the recently extinct gastric brooding frogs. There are only two known species ever to exist, they were discovered in the 1970s and gone by the 1980s, but they are the only known animal to ever give birth through their mouths. And it's hard to say because it's hard to believe. The female would swallow her recently laid eggs and then keep them in her stomach until they were fully developed, and then when they were ready to come out, she would forcibly vomit them all out at once, sometimes up to 26 at a time.

=====Outro=====

Thanks for watching Mental Floss on YouTube, which is made with all the help of all these nice people, and super huge awesome thanks to Bill Stanley, Alan Resetar, Paul Mayer, Jim Boone, the Harris Learning Collection, and everyone else at the Chicago Field Museum.

Every week we endeavor to answer one of your mind-blowing question, and this week's question comes from Lily K., who asks, "Is it true you have to wait a half hour after eating before you go swimming?" It is an old wives' tale that you will get a cramp and drown if you go swimming immediately after eating, but maybe you should just give yourself a little break anyway. If you've got a mind-blowing question that you would like to see answered, make sure to leave it in the comments below. I'm Emily Graslie of The Brain Scoop, and don't forget to be awesome.