

Megafauna

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Entertainment

Midnight Facts for Insomniacs

Podcast Transcript

(Note: transcript consists of episode outline)

Fauna is a fancy word for animals, and mega is a fancy word for big, so today we're talking about big fancy animals. Among the various definitions of megafauna that you'll find is any animal over 100 pounds, so most humans could technically be considered megafauna. Unless you're a small human, if you are a child you don't qualify as mega, you are, I don't know....minorfauna. lesser fauna? That seems rude. But typically when scientists talk about megafauna they're referring to extinct species, and in particular dinosaurs and the massive ice-age-era precursors of many common animals that we know today. Before there were elephants there were woolly mammoths, before there were chickens and ostriches there were velociraptors, before there were sloths there were big ass sloths (that's the official taxonomy). If you hopped in a Time Machine and set your target for a couple million years ago in the Americas, you would find lions roaming the countryside hunting

sloths the size of monster trucks and battling dire wolves and sabretooth tigers. You could ride on the distant ancestors of modern camels while fleeing from bears weighing 5000 pounds and marveling at lumbering armadillo-like creatures known as glyptodons that were as big as Volkswagen beetles. In Australia there were 7-foot tall flightless birds, 10-foot-tall kangaroos and a veritable menagerie of other deadly creatures... honestly, not much has changed there. Australia: still a dystopian nightmare. But they did have giant fuzzy wombats, called diprotodon, which makes me incredibly happy. Wombats are adorable, even if they're 6,000 pounds. Still snuggelable. Worth it. Meanwhile Europe was teeming with cave hyenas and woolly mammoths spanned the continents...it was a wild time.

But the truth is that giant organisms never went away. In fact, we live alongside the largest organism ever to inhabit planet earth. Do you want to guess the identity of the largest organism of all time, which still exists today? You might notice I was being sneaky with my verbiage, I said the largest *organism* that exists today thereby initiating a tangent that has nothing to do with today's topic, but is fascinating to me. The largest organism on earth is not mega fauna, it's mega flora, The Aspen tree, which grows in interconnected clone colonies that can span 5 miles, linked by giant underground root systems. The largest known organism to ever

have existed is an aspen colony called Pando, located in Utah. It's also the heaviest organism that we are aware of, weighing more than 6,000 tons. And if that weren't enough it's among the oldest living known organisms, with a root system estimated to be thousands of years old. There is actually another candidate for the heavyweight mega-organism title: a megafungi, a mushroom in eastern Oregon called *Armillaria ostoyae*. "The fungus primarily grows along tree roots via hyphae, fine filaments that mat together and excrete digestive enzymes. But *Armillaria* has the unique ability to extend rhizomorphs, flat shoestring-like structures, that bridge gaps between food sources and expand the fungus's sweeping perimeter ever more....Collectively, this network is called the mycelium and is of an indefinite shape and size." That is cyberpunk af. Fuck Skynet, we need to be keeping an eye on this clone network of rhizomorphs. You heard it here first, we're all going to die, and as usual I will immediately betray the human race and welcome our new fungi overlords.

But returning from our tangent to the topic at hand, we do also live with alongside the largest example of megafauna ever to exist, and you got it: the blue whale. *Balaenoptera musculus* can reach 30 meters, aka 90 feet long, weighing around 200 tons. The largest are the Antarctic blue, these are baleen whales that feed on krill; instead of teeth their mouths are packed with fibrous hairs that they use

like a sieve, drawing in massive droughts of water packed with krill, and then pushing the water out through the hairs and then...gulp. They have hairy mouths, which is unpleasant. Imagine shedding into your own mouth. I'm very glad humans don't eat like baleen whales. Taking a big bite of soup and then squirting the broth through your teeth and gulping down the chunks. I've met some babies who eat like that. This is what bibs are for. We typically think of giant reptiles like the dinosaurs as being the largest animals to ever live on earth but blue whales are mammals, they give birth to live young just like we do, they nurse them, they breathe air and have nipples and produce milk. From a discovery wildlife article: "The blue whale has the largest mammary glands on Earth – each is about 1.5m long and weighs as much as a baby elephant." Those are some impressive titties.

So even though we think of megafauna as a phenomenon of the past, the largest megafauna of all time still exists today in the ocean, and even when it comes to land animals, you can find some genuinely impressive examples of megafauna these days at your local circus or zoo, or if you live in Canada, you might find one in your yard. Have you ever seen the size of a freaking moose? Head to Africa and you're just a Safari away from megafauna like elephants, giraffes, hippos, and rhinoceri. Or just drop by your local farm or field; cows and

horses are legit megafauna. Have you seen a freaking Clydesdale? If you haven't been in the vicinity of a cow or horse recently, go pet one, I recommend petting cows and horses for many reasons, they're delightful creatures and they will fill your heart with happiness, and also they're freaking huge. We city folk forget how big they are; we've talked about the folly of the urban legend that is cow tipping, try to tip a cow and see how that works out. So we do still have some animals that qualify as Megafauna on land, but the largest versions of land animals we have today are still puny compared to their prehistoric ancestors. Think of the difference between a house cat and a tiger, and that's the type of scale we're talking here. Apart from the dinosaurs, the most famous examples of extinct megafauna are the giant ice age precursors to modern-day megafauna: woolly mammoths and Sabre toothed tigers, and we have to talk about one of my personal favorites: the previously referenced giant sloth. We're all familiar with the modern cute, lazy little tree sloth who weighs around 20 pounds, or 10 kg. The giant monstrous ground sloths, officially named megatherium, could weigh 5 tons, they were the size of a monster truck, and they existed alongside and may have even battled our human ancestors. While the biggest sloths are thought to have disappeared around 10,000 years ago, as recently as 1550 BC. there were still bear-sized giant sloths roaming

around in the Caribbean. Three thousand years ago seems like a long time, but to put this in perspective that means sloth-bears were being wiped out by the first humans in Cuba around the same time that the pyramids were being built in Egypt.

If you want to see examples of megafauna while also learning about them in detail, a great place to start is the La Brea tar pits. Located in Southern California, the La Brea tar pits consist of over 100 bubbling pools of thick crude oil, a substance that was historically used by Native Americans to seal their boats, and Ice Age animals frequently found themselves stuck and entombed in the goopy stuff. Mammoths, ground sloths, dire wolves, American lions (yes, as mentioned there were lions in America) and the sabretooth cat, which by the way is the state fossil of California. Did they eventually run out of cool Ice Age animals and a few states had to settle for just some dude. "Our state skeleton is Jeff." The most famous fossil that you can still visit at the La Brea museum located on the site of the pits is Zed, an almost completely intact woolly mammoth only missing the top of its head, which was shaved off by a construction crew when they were preparing to create the parking structure.

Oops. *Someone* got fired. "Hey, just a random question, was this skeleton's head intact before I started indiscriminately swinging my chainsaw?" Reading about this place

made me really want to go there, it's not that far from here, next time I'm in Los Angeles I'm definitely checking this out. I don't know how I haven't seen it yet.

So let's talk about the obvious question, where did all of the big land animals go? There aren't enough tar pits to drown them all. Well, throughout history there have been natural extinction events, and man-made extinction events. Our ancestors weren't particularly concerned about preserving endangered species. Not a lot of prehistoric conservationists. For the first 8000 years or so of human history, Maslow's hierarchy of needs didn't allow for the luxury of giving a fuck about creatures that weren't your immediate family. So it's a good bet that human hunting at the very least contributed to the extinction of many of the Pleistocene—Ice Age—megafauna. But many scientists believe climate change was at least partially if not fully to blame. Which underscores the importance of environmental protection. We talk about preserving the environment, but what that really means is that we're trying to keep the environment from destroying us. And destroying living creatures is something the environment is really good at doing. When it comes to natural extinctions, there have been five major extinction events that we know of, and the true era of the giants--the Mesozoic era, which encompasses the dinosaur infested Triassic, Jurassic, and

cretaceous periods--ended with one of the most dramatic. Here's a quick overview:

Ordovician-silurian Extinction of 440 million years ago

This first major extinction occurred before life had emerged from the oceans. Obviously it's a little tough for us to conclusively determine the cause of events from 400 million years ago, but the best guess is that some type of climate event was triggered by emerging volcanoes or even gamma rays from a supernova ripping a hole in the ozone layer, we most likely will never know. What we do know is that the extinction event killed off around 85% of the species that existed at the time, mostly tiny marine organisms, so not a super dramatic extinction, unless you were a tiny marine organism 400 million years ago. Then it was probably pretty dramatic.

Next we have the...Devonian Extinction: 365 million years ago

By this point the most prevalent animals on earth were fishes, in fact the Devonian period is often referred to as the "age of fish." Sounds smelly. But we also did have some land animals and also a proliferation of plants which were probably to blame for this second mass extinction of marine life. "As plants evolved roots they inadvertently transformed the land they lived on, turning rock and rubble into soil...This nutrient-rich soil then ran into the world's oceans causing algae to bloom on an enormous scale. These blooms

essentially created giant "dead zones," which are areas where algae stripped oxygen from the water, suffocating marine life and wreaking havoc on marine food chains." Some 75% of ocean species bit the dust during this extinction. Or whatever the aquatic version of dust is.

Permian-triassic Extinction: 250 million years ago

This was the largest extinction event in history, and now we're finally killing off land animals so it feels personal. This one is pretty extreme, though. Often referred to as "the great dying" this extinction event erased 90% of life on earth, including 96% of marine life and 70% of life on land. The Permian Triassic extinction is believed to have been caused by rampant volcanism, the earth was still very tectonically active, and a massive eruption of volcanos spewed a ton of carbon dioxide into the atmosphere, it basically created the greenhouse effect that we're all concerned about now. So if you think climate change is a hoax or whatever, talk to the reptiles, insects, plants, and amphibians of the Permian era. Oh yeah, ya can't. They're dead. Due to the extinction event and the rest because it was 250 million years ago.

Triassic-jurassic Extinction: 210 million years ago

This is the extinction event that cleared the way for the monstrous lizards, which is the literal meaning of the word dinosaur. The cause of this one is a bit of a mystery but volcanoes again seem to be a likely culprit.

Extinction events like this one often wipe the evolutionary slate clean and make room for the emergence of a new type of critter, and speaking of which, we humans wouldn't be here without the

Cretaceous-tertiary Extinction of 65 Million Years Ago

The final extinction event is easily the most famous and while it wasn't the most extreme, it still took out 75% of species on earth, so pretty respectable. Also known as the the K-T extinction, because it happened at the end of the Cretaceous period and the beginning of the Tertiary period, though If you're an English major like me you're probably wondering why k-T instead of C-T, (Cretaceous is not spelled with a K), well apparently "C" was already being used for an earlier period, the Cambrian. So Geologists use "K" as shorthand for Cretaceous. Because sure, it's not like it needs to be precise, it's just science.

But the KT extinction , As you probably know, was caused by a giant asteroid over 8 miles or 13 km wide that slammed into Yucatán Mexico and raised a titanic mushroom cloud of dust and debris that blotted out the sun, which killed off plant life and caused a chain reaction: when the plants died, the plant-eating herbivores died, and when the herbivores died, the carnivores died. It was a tipping of dominoes that ended the age of giant reptiles and offered little rodent-like mammals the chance to flourish, and those furry pests are

our distant ancestors. Our ancestors were basically the equivalent of fuzzy cockroaches, the vermin that were small enough and scrappy enough to survive the global holocaust. The KT extinction wiped out half of all the animals and plants on earth, it was like a reset button for evolution.

God shaking the Etch-a-Sketch and saying "Try again." There would still be some large critters, because as we've already mentioned Megafauna persisted until the most recent Ice Age, but land animals would never again achieve the size of the dinosaurs. And as we already established, there was another minor wave of extinctions that isn't included in these five, because it wasn't nearly as impactful or dramatic—but after the last Ice Age, the Pleistocene era that ended around 10,000 years ago-- that's when humans began to really flourish, which coincided with the disappearance of some of the most famous Megafauna ever on earth. Sabertooth tigers, woolly mammoths, those big ass sloths...I'm sure there's no connection.

And btw If you're getting confused by all of this epoch/era/period stuff, that is the geological time scale, or the GTS and here's a quick and easy breakdown: "an era = A unit of time shorter than an eon but longer than a period. period = A unit of time shorter than an era but longer than an epoch. An epoch = A unit of time shorter than a period but longer than an age." Got it? Sorry. That was my favorite online

definition because it's like a zen koan. Basically an eon is the longest stretch of time, followed by an era, then an epoch, and finally an age, which is the shortest measure of geological time, but is millions of years long. The scale of geological time is kind of mind-boggling. Just to set our scene, we are currently in the Phanerozoic eon, the Cenozoic era, the Quaternary period, and the Meghalayan age.

So now we've located ourselves in time, I'm sure that was very helpful, it's like getting your GPS coordinates. You're at 39.758261 degrees Northwest, Cool. Ok, we've covered some history, some chronology, we've covered some geology and biology, and soon we're going to talk in detail about the most impressive of these mega critters (I promise, we're getting there), but it would be an oversight if we didn't explain why large size is so damn impressive. That's what she said. Well, first off it's not easy being huge. It isn't easy being green, or weighing thousands of pounds.

Have you heard of the square cube law? Also known as the "why don't we have giant ants?" law. This is a little bit complicated, but it comes down to the fact that as an object gets bigger, its volume increases more than its surface area. Like, picture a cube. It has six sides and let's say each is one square inch. If you double the dimensions of the cube, the sides of the cube double, but the volume balloons by a factor of three. Basically

when the outside of an object grows a little, the inside grows a lot. So, "If an animal were isometrically scaled up by a considerable amount, its relative muscular strength would be severely reduced, since the cross section of its muscles would increase by the *square* of the scaling factor while its mass would increase by the *cube* of the scaling factor. As a result of this, cardiovascular and respiratory functions would be severely burdened." So you can't just take a small animal and make it big without completely redesigning its musculature and adding bigger, denser bones and an upgraded cardiovascular system etc.. An ant has spindly little legs, but it can still carry like 50 other ants because it's tiny and its strength is off the charts in proportion to its weight. But if you scaled that ant to the size of a truck, its weight would increase far more than its stability and strength, and its little legs would collapse. This is why you can build a house with wood but you can't build a skyscraper with wood. My point is that ants are made of wood. It's a witch!

British scientist J. B. S. Haldane explained it this way, using the example of two fictional giants named pope and pagan from pilgrims progress: These monsters...weighed 1000 times as much as [a normal human]. Every square inch of a giant bone had to support 10 times the weight borne by a square inch of human bone. As the average human

thigh-bone breaks under about 10 times the human weight, Pope and Pagan would have broken their thighs every time they took a step." So I hate to break it to you, so to speak, but King Kong and Godzilla are impossible. They would collapse under their size and weight. A realistic clash between Godzilla and King Kong would have been a lot less dramatic because they would have been laying side by side with their bones liquefied, just moaning. Not a great film. And of course this is why the biggest animal to ever inhabit this planet lives in the water. The buoyancy of water helps support and distribute that extra weight.

So now we know why giant animals are built the way they are, and why there will never be a lizard the size of Godzilla, but let's talk about a few that came pretty damn close. We're going to cover some "biggests." The largest everything ever. And we'll start in the present day. So the largest land animal on earth currently is the African elephant, while the Largest carnivore on earth currently is the polar bear. You might notice there's a slight size discrepancy between these two critters, and does any major difference jump out at you, something that might account for the size discrepancy? Polar bears eat meat, while elephants don't. Carnivores on land tend to be limited in size, while herbivores can grow huge. The reason is obvious if you think about it...it takes energy to be a predator, you have to be agile and

quick, whereas an herbivore can literally lounge around all day just munching on grass or foliage or tree bark or whatever. So for a carnivore, large size can be a disadvantage, because you're too slow to catch prey, and it also takes an incredible amount of meat to maintain your active lifestyle. Meanwhile, for an herbivore, being huge is easier to maintain because your lazy grass-munching ass isn't burning many calories, and being huge is actually an evolutionary advantage for an herbivore because you're a hassle to take down. Most predators are going to go for the smaller and easier prey. Now of course the largest animal ever, the blue whale, isn't an herbivore, but the rules are just different in the water. And krill don't take a lot of energy to harvest, they're basically the ocean's grass. Blue whales aren't chasing down and slaughtering schools of dolphins, they're aqua-grazing.

Largest animal ever to walk the earth was the Patagotitan mayorum. You can probably guess that this animal's name references the Titans of Greek mythology as well as Patagonia, the region in South America, so this is a titan from South America.

The size of 12 African elephants, Patagotitan was a literal monster. It basically looked like a brontosaurus on steroids. Over 130 feet long--more than 40 meters--and weighing 85 tons. Obviously these are estimates but I think it's safe to say it was hefty. Its thigh bone was discovered in

Argentina by a farmworker in 2008, and six partial skeletons were eventually unearthed. "Given the size of these bones, which surpass any of the previously known giant animals, the new dinosaur is the largest animal known that walked on earth." there is some debate about this, with other scientists maintaining that argentinosauros, and I bet you'll never guess where that one was found, is still the largest dinosaur ever discovered, but the argentinosauros bones were very fragmentary, we really only have part of the rear legs and hip. And that's something that I think a lot of people don't understand: when you see the giant skeleton of a Tyrannosaurus rex or brontosaurus in a museum, first off you're probably not seeing any real bones, instead you're seeing casts of the bone—but even the original bones that were discovered were most likely just a few parts of a leg, a few parts of a spine, maybe a claw, and then the rest were imagined, sculpted based on extrapolation. So like, "animals that have thigh bones like this typically have shoulder bones like this, etc." Much of it is a guessing game, though obviously these are highly educated guesses. The average dinosaur had around 200 bones, but when it comes to the Titanosaurus, less than half of those were found for any single specimen. The most complete included around 80 bones. "no one's found a single complete fossil skeleton of *Patagotitan mayorum* (yet). But scientists can estimate how

big *Patagotitan* was and what its missing bones looked like based what they know about other long-necked titanosaurs.

To make *Máximo*, all the existing *Patagotitan* fossils were 3D scanned and printed, and the missing bones were sculpted. Then, the 3D printed bones were used to make molds. Those molds shaped the cast bones for the skeleton, which is resin and fiberglass around a metal structure."

So paleontologists really are like detectives, re-creating a creature from a limited set of data. A great example is the previously mentioned brontosaurus. Which may not even exist, depending on who you talk to. From a 2012 NPR article titled *Forget Extinct: The Brontosaurus Never Even Existed*, "The Bone Wars was the name given to a bitter competition between two paleontologists, Yale's O.C. Marsh and Edward Drinker Cope of Philadelphia...their mutual dislike, paired with their scientific ambition, led them to race dinosaur names into publication, each trying to outdo the other."

Supposedly these two guys hated each other so much they would smash skeletons to keep the other guy from getting them. Which is a weird strategy, why not just keep them, but ok. "Paleontologists build their taxonomies by looking for subtle clues in fossil bones---a neck bone with a slightly different ratio of length to width, or a shoulder blade that's a

slightly more square shaped. Based on the percentage of these similarities and differences, scientists can determine taxonomy---which fossils are different individuals of the same species, which are species in the same genus, and which are distinct genera within the same family."

So the bottom line is that Marsh was so eager to one-up the competition that when he received an *Apatosaurus* skeleton, he misidentified it as a completely new animal. "Although the mistake was spotted by scientists by 1903, the *Brontosaurus* lived on, in movies, books and children's imaginations. "

All of that changed again in 2015, when scientists decided that there was enough variation to consider *brontosaurus* its own creature. "We were very surprised when we got these results that *Brontosaurus* was valid again." So, yeah, it's not always an exact science.

I'm happy to report that we do finally have a complete *Tyrannosaurus rex* skeleton, though. The first complete *tyrannosaurus Rex* skeleton was only discovered two years ago in Italy, it's pretty dramatic it was engaged in battle with a *triceratops*, apparently they took each other out. Got to give that *triceratops* some credit, he didn't go down easily. The pair of skeletons is nicknamed "the dueling dinosaurs." I like to think maybe they weren't fighting, maybe it was some interspecies cross-pollination. Maybe their love-making was so intense and

climactic that they both expired simultaneously. I can dream.

Largest predator to ever walk the earth: Spinosaurus

And by the way if you Google spinosaurus on your smart phone, you can play with a 3-D model of one, and there's an option to download the Google app or use an augmented reality function to place it in your living room or bedroom or whatever. it's really fun for about 45 seconds.

Anyway the spinosaurus looked kind of like a supersized T Rex with a crocodile-ish head and a large spiny ridge running like a batwing down his back. The spinosaurus was taller, longer, and heavier than the T Rex, but also dumber and slower, with weaker jaws. In a fight between a T-Rex and a spinosaurus, I'd put my money on the T Rex. And so would many experts. However, this is not the conclusion you will come to you if you watch Jurassic Park part 3, in which a spinosaurus snaps the neck of a T Rex, further proving that every new Jurassic Park movie after number one is complete garbage. But you can watch that travesty of a movie scene on YouTube if you want, at least it gives you a sense of the relative sizes of these two critters. I like to refer to dinosaurs as critters, it makes them less scary.

Unfortunately this heavyweight battle never took place, the spinosaurus lived some 30 million years before the

tyrannosaurus. But I like to imagine what it would have been like, so let's compare:

In this corner, weighing in at around 15,000 pounds, the king lizard, with a top speed 17 mph, a mouth stuffed with foot-long teeth and a biting force of 57,000 pounds, top-notch vision and an incredible sense of smell, undisputed star of stage and screen, Tyrannosaurus rex.

And in the opposite corner, literally twice as heavy at 30,000 pounds, presumably muscle but maybe he was just an enthusiastic snacker, no body shaming, taller by just a few feet but up to 20 feet longer, with an unfolded Japanese fan attached weirdly to its back, slower physically and intellectually, with practically no sense of smell and vision that could be described as "meh," teeth half as long as T rex with a paltry 19,000 pounds of bite force, less than half of T Rex power, the sacrificial lamb...I mean Spinosaurus. I don't think it's a contest.

The Largest insect ever lived during the Permian period, Meganeuropsis permiana is a very cool name for what is essentially an oversized dragonfly. Or more accurately a griffinfly, which is an even cooler name for an oversized dragonfly. At first I wasn't particularly impressed with the pictures of this thing, until I read more about it. It has a wingspan of a couple feet, and large powerful front mandibles. It was highly maneuverable, able to swoop and dart

and change direction on a dime. It was a predator, feeding on giant roaches and roach-like insects. As babies, the Griffinly nymphs lived in the water, and developed their mandibles and powerful jaws early, chomping on fish and other large water insects. So yeah, an absolute horrorshow. Thankfully it couldn't exist today because it relied on the higher oxygen content of the air during the Permian period. Insects don't have lungs, they breathe through a network of tracheal tubes. They're basically aliens. The last of the Meganeuropsis was killed off by the volcanoes of the Permian extinction and yeah, cheers volcanoes. I've always been on the fence about volcano eruptions, they can be a real nuisance if they're nearby but they're very entertaining, but now me and volcanoes are cool. Good work buddies.

The largest land mammal ever also has one of the best names ever, I'm going out on a limb and saying it's one of the greatest words I have come across while researching this podcast. A hornless rhinoceros that lived in Eurasia, as big as five elephants, The Paraceratherium reigned during the Oligocene Epoch, around 20 or 30 million years ago. It's awesome name means "near the hornless beast," indicating that it was similar to the *Aceratherium*, another prehistoric hornless rhino that had been discovered earlier. Kind of disrespectful. It's a shame that such a cool name has a shitty meaning. It's

like if you had a younger brother and they named him, "looks like Duncan." So like the rhino of today, the Paraceratherium had a large prehensile upper lip, obviously much bigger than the modern rhino's version, it was almost a short trunk. It's legs have been described as "pillar like." And, yeah. A Twenty ton body needs some pillars. This thing wasn't going to be tap-dancing around on some knock-kneed giraffe legs. Giraffes are the only megafauna that doesn't make sense to me, by the way. I feel like we're running into the ant problem here, how do such spindly legs support such a big critter? Giraffes definitely skip leg day. So this thing was about 16 feet tall, 24 feet long, its head alone was 4 feet long. I love that they say it was as big as five elephants, that just makes me think of a stack of elephants in a trenchcoat trying to get into a movie theater or something. No one knows why the Paraceratherium went extinct, but I'm assuming it just wanted to, because no one was forcing this thing out of existence. It reached maximum possible size for a land mammal and was like, "it doesn't get any better than this. I'm going out on top."

Dire Wolves

We have to talk about those GoT staples, Dire Wolves. George RR Martin is a creative guy but he kind of just phoned it in with this one. Because he didn't even bother making up a creature, he just stole some megafauna. The name means

"terrible" or "dreadful" wolf, which is again kind of rude. They're not inherently more terrible than a regular wolf, that feels like an unnecessary value judgment. Similar to the woolly mammoth and ground sloth and sabertooth tiger, these were staples of the Ice Age, the end of which coincides with the rise of humanity. Dire wolves would have hunted giant sloths and battled massive wildcats, although I doubt they chased sabertooth tigers the way dogs these days chase housecats. Dire wolf fossils are prevalent at the La Brea tar pits. Dire wolves probably looked a lot like modern gray wolves, just slightly larger and with a much stronger bite. Recent genetic sequencing has revealed that despite the resemblance, their relation to modern wolves is extremely distant, they are more closely related to the African black-backed jackal. Their closest common wolf-ancestor died off around 5.5 million years ago. According to University of Alberta anthropological archaeologist Robert Losey, "That you would have this convergence in body form even though you have such a long period of separation suggests that the wolf body form is very, very successful, and clearly has been for a very long time." So, yeah; Wolf: very successful form factor. If you have to choose a creature to be, be one with big teeth and a pack of buddies, you'll never go out of fashion. Except you might still end up on a leash begging for treats, because evolution can't account for

human nature.

Finally we have to talk about one of my personal favorites: the previously referenced giant sloth. We're all familiar with the modern cute, lazy little tree sloth who weighs around 20 pounds, or 10 kg. The giant monstrous ground sloths, officially named megatherium, could weigh 5 tons, and they existed alongside and may have even battled our human ancestors. While the biggest sloths are thought to have disappeared around 10,000 years ago, as recently as 1550 BC. there were still bear-sized giant sloths roaming around in the Caribbean. Three thousand years ago seems like a long time, but to put this in perspective that means sloth-bears were being wiped out by the first humans in Cuba around the same time that the pyramids were being built in Egypt.

So those were some of the most extreme and interesting versions of megafauna as determined by me. We skipped a few of the more common examples like woolly mammoth and Sabre-toothed tigers because I feel like they've been overexposed. We've all seen them in movies and cartoons and whatever, but I'm betting a few of you didn't know about the paraceratherium. Just wanted to say it one more time.

We have new Patrons! Andrew

Peterson, a midnight menace, thank you Andrew, and Kiel Starforth, another midnight menace and clearly a Jedi. I assume.

Review:

7:39 ↗



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i have to peel a orange



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