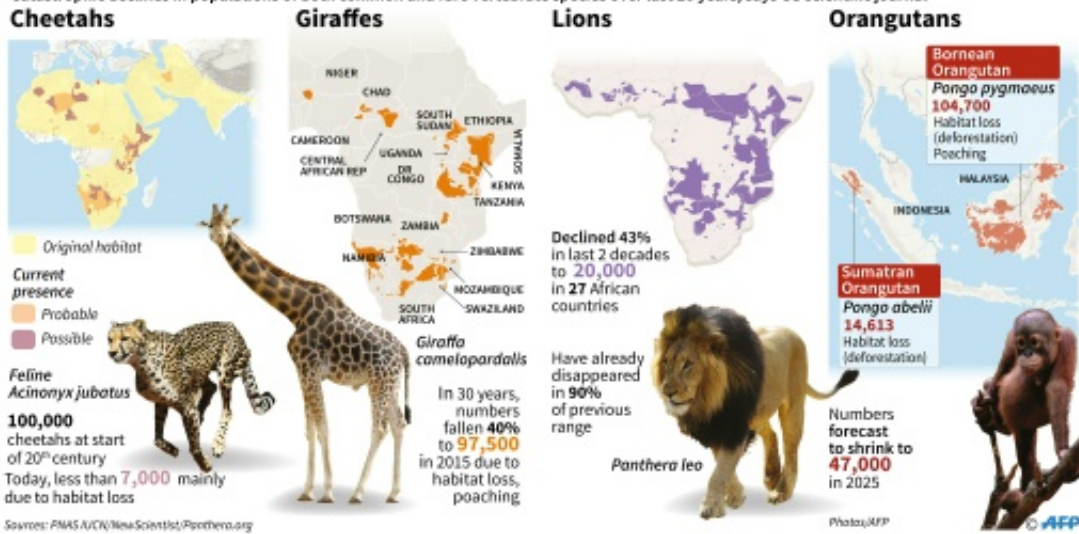


Earth's major 'mass extinction' events

July 11 2017

"Biological annihilation" of species worldwide says study

Catastrophic declines in populations of both common and rare vertebrate species over last 20 years, says US scientific journal



The planet is undergoing what scientists call a "mass extinction," mostly due to human activity, unlike the other major wipeouts that have occurred over the past half-billion years

Most scientists agree that a ["mass extinction" event is underway](#) with the Earth's wildlife disappearing at an alarming rate, mainly due to human activity.

But this is not the first time: over the last half-billion years there have been five major wipeouts in which well over half of living creatures disappeared within a geological blink of the eye. All told, more than 90 percent of organisms that have ever strode, swam, soared or slithered on

Earth are now gone.

Here are the biggest die-offs, each showing up in the fossil record at the boundary between two geological periods:

Ordovician extinction

When: about 445 million years ago

Species lost: 60-70 percent

Likely cause: Short but intense ice age

Most life at this time was in the oceans. It is thought that the rapid, planet-wide formation of glaciers froze much of the world's water, causing sea levels to fall sharply. Marine organisms such as sponges and algae, along with primitive snails, clams, cephalopods and jawless fish called ostracoderms, all suffered as a consequence.

Devonian extinction

When: about 375-360 million years ago

Species lost: up to 75 percent

Likely cause: oxygen depletion in the ocean

Again, ocean organisms were hardest hit. Fluctuations in sea level, climate change, and asteroid strikes are all suspects. One theory holds that the massive expansion of plant life on land released compounds that caused [oxygen depletion](#) in shallow waters. Armoured, bottom-dwelling marine creatures called trilobites were among the many victims, though some [species](#) survived.

Permian extinction

When: about 252 million years ago

Species lost: 95 percent

Possible causes: asteroid impact, volcanic activity

The mother of all extinctions, the "Great Dying" devastated ocean and land life alike, and is the only event to have nearly wiped out insects as well. Some scientists say the die-off occurred over millions of years, while others argue it was highly concentrated in a 200,000-year period.

In the sea, trilobites that had survived the last two wipeouts finally succumbed, along with some sharks and bony fishes. On land, massive reptiles known as moschops met their demise. Asteroid impacts, methane release and [sea level](#) fluctuations have all been blamed.

Triassic extinction

When: about 200 million years ago

Species lost: 70-80 percent

Likely causes: multiple, still debated

The mysterious Triassic die-out eliminated a vast menagerie of large land animals, including most archosaurs, a diverse group that gave rise to dinosaurs, and whose living relatives today are birds and crocodiles. Most big amphibians were also eliminated.

One theory points to massive lava eruptions during the breakup of the super-continent Pangea, which might have released huge amounts of

carbon dioxide, causing runaway global warming. Other scientists suspect asteroid strikes are to blame, but matching craters have yet to be found.

Cretaceous extinction

When: about 66 million years ago

Species lost: 75 percent

Likely cause: asteroid strike

An space rock impact is Suspect No. 1 for the extinction event that wiped out the world's non-avian dinosaurs, from T-Rex to the three-horned Triceratops. A huge crater off Mexico's Yucatan Peninsula supports the asteroid hypothesis.

But most mammals, turtles, crocodiles and frogs survived, along with birds as well as most sea life, including sharks, starfish and sea urchins. With dinosaurs out of the way, mammals flourished, eventually giving rise to the species—Homo sapiens—that has sparked the sixth mass [extinction](#).

© 2017 AFP

Citation: Earth's major 'mass extinction' events (2017, July 11) retrieved 25 April 2024 from <https://phys.org/news/2017-07-earth-major-mass-extinction-events.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.