

The biodiversity crisis in numbers - a visual guide



Human domination of the planet means livestock and people far outweigh wild animals. Illustration: Valero Doval/The Guardian

Nature is under threat as never before, but what does that actually mean? We explain what is at stake – and why action at Cop15 is more crucial than ever

The age of extinction is supported by

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Despite humanity's many technological advances, we can only manage a well-informed guess at the true extent of life on Earth: 8.7 million species, **according to the most commonly cited figure**, with other estimates ranging between **5.3 million** and **one trillion**.

There is greater certainty about the decline of biodiversity that human behaviour is driving, with species dying off as much as 1,000 times more

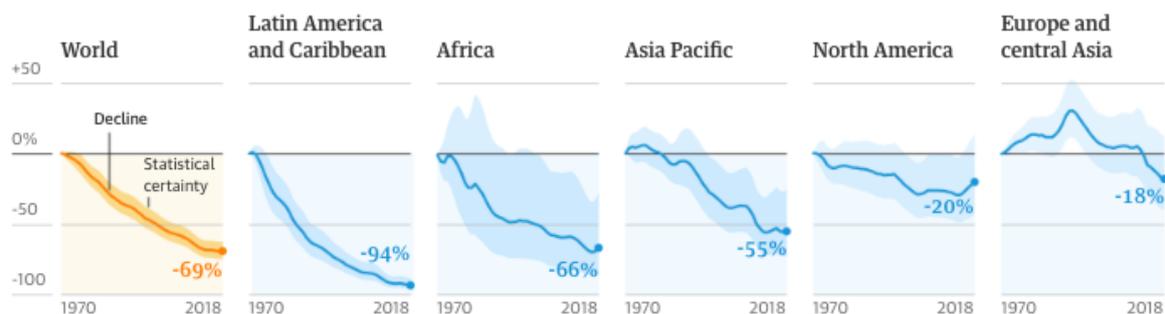
frequently than before the arrival of humans 60m years ago, as **one study suggests**.

“Humanity will eventually pay a very high price for the decimation of the only assemblage of life that we know of in the universe,” scientists Gerardo Ceballos, Paul R Ehrlich and Rodolfo Dirzo wrote **in a 2017 paper**, warning of a sixth mass extinction of life on Earth.

Changes in land and sea use, exploitation of natural resources, global heating, pollution and the spread of invasive species are the five main drivers of this loss of life, **according to leading UN experts**.

One of the best sources about the decline of biodiversity is the **Living Planet Index**, a metric developed by researchers at the WWF and the Zoological Society of London to measure the abundance of animal life. It is made up of datasets from about 32,000 populations of 5,230 animal species. When populations of mammals, birds, fish, amphibians and reptiles increase, so does the index. The opposite happens when populations decline.

The region of Latin America and the Caribbean has experienced the steepest decline in animal populations since 1970



Guardian graphic. Source: World Wildlife Fund and Zoological Society London

According to the most recent figures, **wildlife populations have plunged** by an average of 69% between 1970 and 2018. The abundance of mammals, birds, fish, amphibians and reptiles is falling fast, as populations of sea lions, sharks, frogs and salmon collapse.

The declines have been particularly calamitous in Latin America and the Caribbean, which has seen a 94% drop in the average wildlife population size. Africa has had the second largest fall at 66%, followed by Asia and the Pacific

with 55% and North America at 20%. Europe and Central Asia experienced an 18% fall.



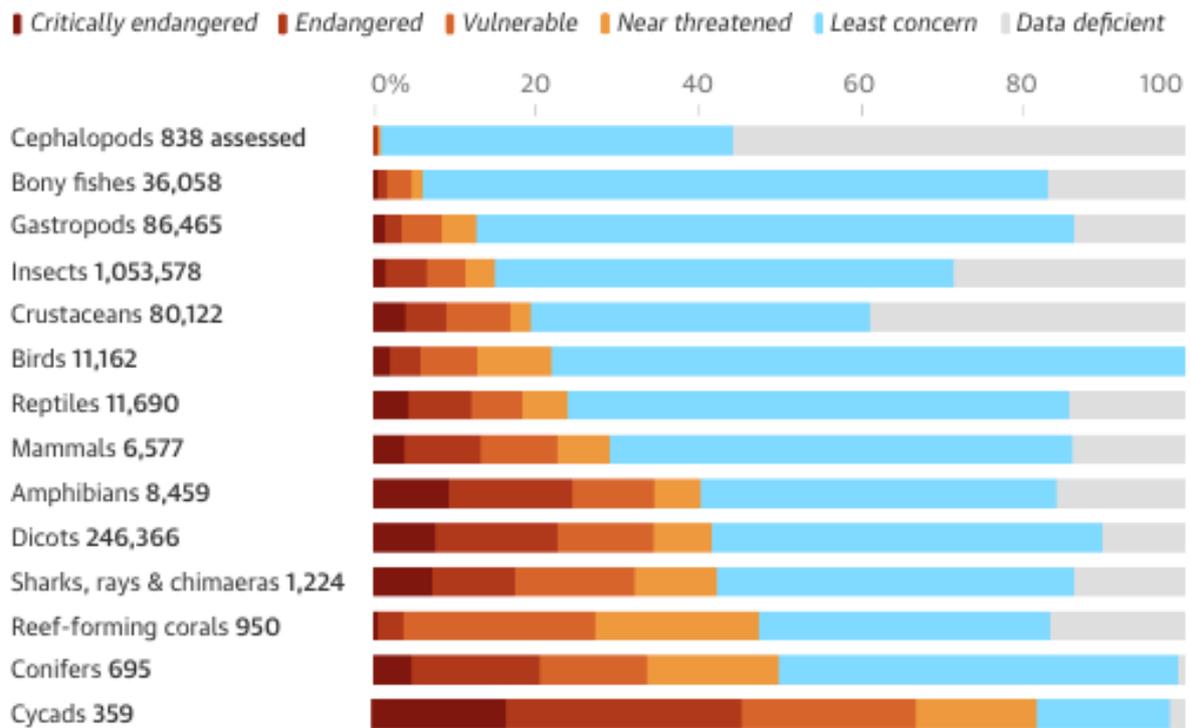
Humans v nature: our long and destructive journey to the age of extinction

These declines do not mean that nearly 70% of animals have been wiped out in just 48 years. It means populations have dramatically fallen and extinction risk is growing, although it is not distributed equally.

According to **the IUCN Red List**, a key source on the state of the world's biodiversity, about 2.13 million species have been identified by scientists; around half of these species are insects. Just 6,577 are mammals, 369,000 are flowering plants and four are horseshoe crabs.

Almost 30% of mammals are at risk of extinction

Percentage of species in each class by extinction risk



Guardian graphic. Source: IUCN Red List

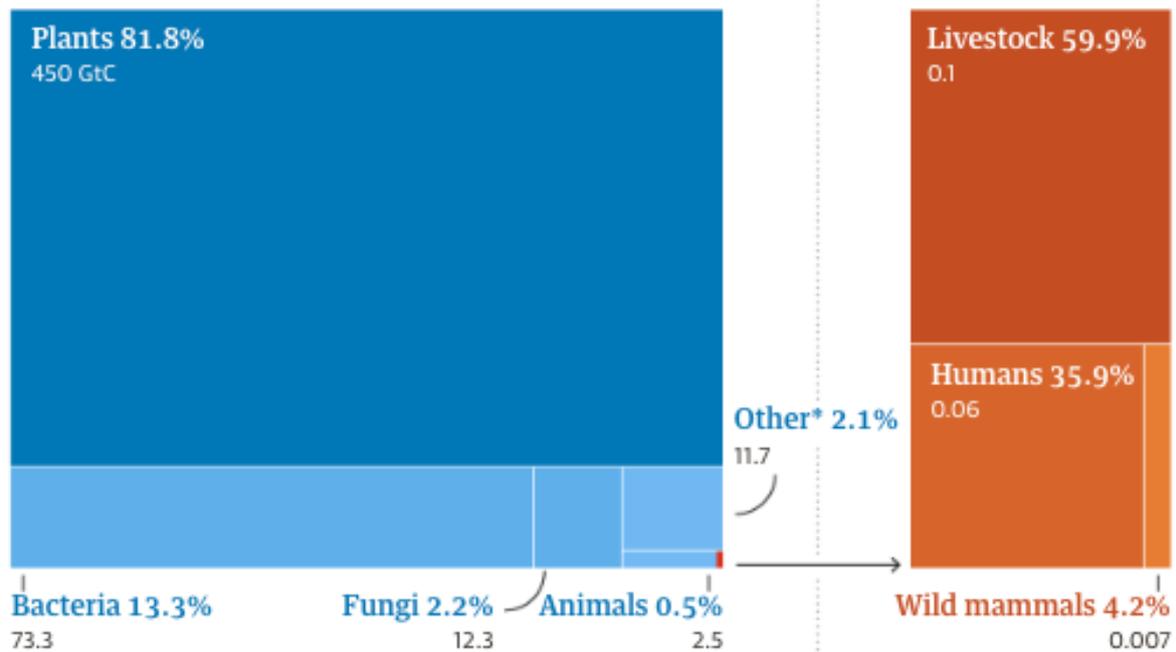
Scientists have conducted analysis of more than 147,500 species for the IUCN Red List, finding that more than 41,000 are threatened with extinction. Cycads – ancient seed-bearing plants that pre-date the dinosaurs – are the group most threatened, with more than 80% at risk of disappearing altogether. More than 40% of sharks and rays are at risk of extinction, while more than a fifth of birds could go.



Top-flight recovery: the inspiring comeback of the California condor

The human domination of the planet has also meant that livestock and humans far outweigh wild animals. In terms of biomass, plants are the most abundant, comprising 82% of the total, according to a 2018 estimate. Of mammals, which make up a tiny portion of the overall figure, livestock comprise 60%, humans 36% and wild animals just 4%.

Total biomass of different groups
550 - gigatonnes of carbon



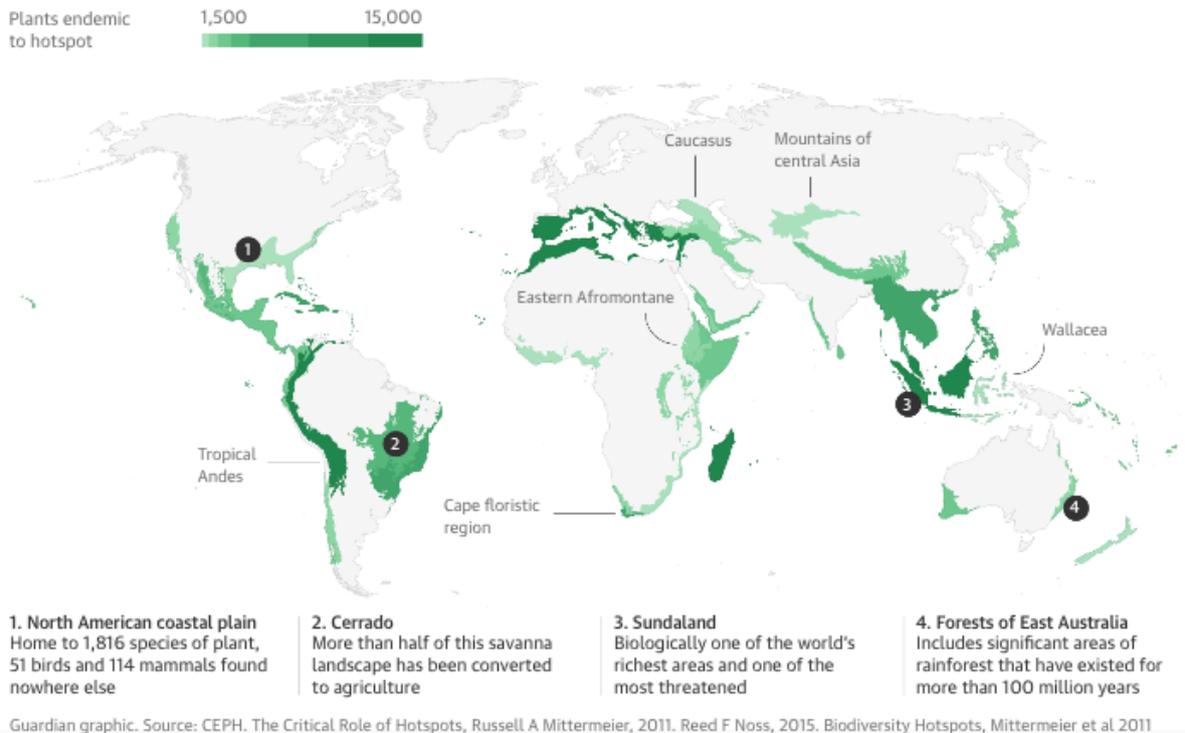
Guardian graphic. Source: Yinon M Bar-On, 2018. The biomass distribution on Earth. Note: *other includes Archaea, Protists and viruses. 1 gigatonne = 1 billion tonnes. Biomass is measured using the mass of carbon, independent of water content

The risks of biodiversity loss are not spread equally. Tropical rainforests and coral reefs are home to more life than deserts and polar mountain regions. Danger is also uneven: the risk of agricultural expansion is low in the Siberian tundra compared with the edge of the **Congo basin rainforest**, for example.

Researchers have identified 36 biodiversity hotspots – areas of Earth that are rich in life but threatened by human behaviour – that require the most urgent protection. They include the Sundaland, the Caucasus, Wallacea and the forests of eastern Australia.

The 36 most biologically rich yet threatened regions

Each hotspot has more than 1,500 unique plant species and has lost 70% of its native vegetation

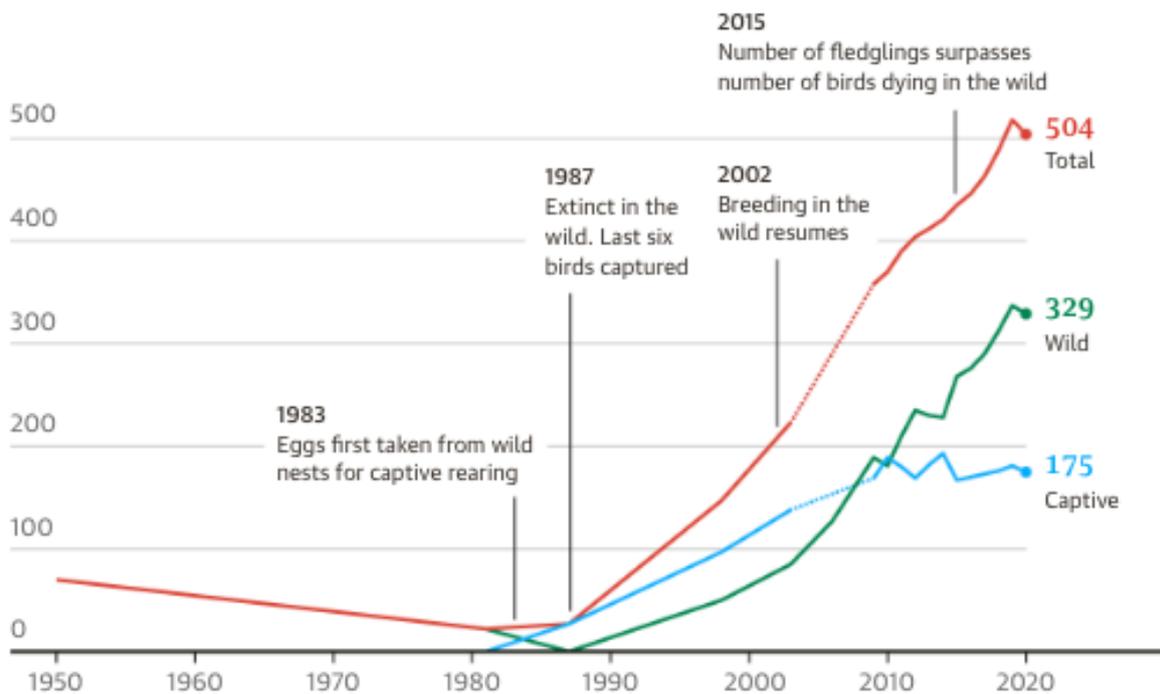


The decline of Earth's biodiversity is not inevitable. Several studies show that the continued loss of wildlife around the world can be prevented. The **Iberian lynx**, Przewalski's horse and the Puerto Rican amazon parrot are among **48 species already saved from extinction by conservationists**.

A new metric, known as the IUCN green status, is helping scientists plot a path to recovery for threatened animals and plants for their potential range and abundance. **The California condor**, for example, although at risk of extinction is believed to have significant potential to rebound. Many more can be restored.

Conservation efforts have pulled the California condor back from the brink of extinction

Number of California condors globally



Guardian graphic. Source: 1950-2009 figures from IUCN, compiled mid year, 2010-20 figures from USFWS compiled at the end of each year. Figures for captive population not available for 2003

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