EXTINCT

LISOWICIA



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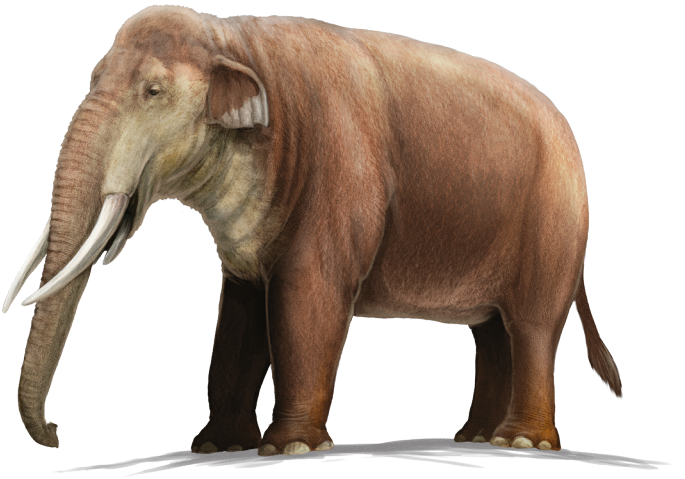


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WHY DO SPECIES GO EXTINCT?

IF I SAID to you there was going to be a terribly cold winter, you'd get a warm hat and coat ready. Or if I said there's a test coming, I'm hoping you'd do your revision and get an early night beforehand. That's because we naturally prepare for things, to increase our chances of succeeding. Nature is like that with species and extinction. The difference is that a species doesn't know it is heading into extinction (as far as we know, we are unique in that knowledge within the animal kingdom). Nevertheless, to some extent, a species prepares in the same way you might get ready for winter or an exam.



This might involve a physical change, such as the slight differences in the colour or pattern of some moths which help camouflage them better in a different environment. It might be a change in size or shape, like some island-living ancient relatives of elephants becoming smaller to cope with less food in their habitat. Sometimes the change is only seen at the genetic level, such as modern varieties of crops having better resistance to particular diseases; or it might even be a change in behaviour, such as peregrine falcons in cities hunting at night, rather than in the daytime, to catch their prey.

There are almost limitless reasons which might lead to extinction but they have one thing in common. They all

focus on change. These changes can be either in the species' 'physical environment', such as the destruction of a habitat, through flooding or drought. Or it might be in its 'biological environment', such as the arrival of a new predator or the development of a new deadly disease. If the species does not have enough time to change or simply cannot change, then it will die out and become extinct. Let's look more closely at the variety of causes that can contribute directly or indirectly to the extinction of a species, or group of species.

DISEASES, PREDATION AND COMPETITION 

Diseases are often linked to extinction. Practically every species alive has its own set of diseases and those which it can pick up from other species. It's easy to think of examples that cause massive problems, such as the famous 'Black Death' plague, but sometimes the most common and harmless condition can cause untold damage.

I was lucky enough to work with wild chimpanzees in Uganda. I lived in a forest and spent every day following

the chimps to study them. I also took tourists out in a responsible way, so that the chimps and their habitat would be protected from hunters and habitat destruction.

To keep the chimps safe, we always kept a distance between us and them. Because they are our closest living relatives, we share almost every branch on the evolutionary tree, meaning we are similar in many ways. It also means that we can share many of the same diseases. Among them is the common cold, something that has evolved with us in the five million years or so since we split from a common ancestor with chimps. For us, a cold means having the sniffles and a runny nose for a few days. When a chimpanzee catches our cold, though, it can be deadly, and in 2018, scientists found that wild chimps at a famous tourist site in Uganda died after catching a cold. All it would have taken was for a tourist with the sniffles to get too close and sadly, that was it.

In a natural situation, it's unusual for a predator to cause the total extinction of its prey, because the two are in balance, where both evolve to be better predators, or better at avoiding predators. This delicate relationship takes millions of years to develop and is a good example of what we call coevolution, where the evolution of



two species is closely tied together. But when a predator is suddenly introduced to an environment, the prey has no time to evolve sufficiently to avoid being eaten.

When Australian farmers had problems with native beetles eating their sugar cane crop, the Bureau of Sugar Experiment Stations decided to bring in a predator which could eat the hard-shelled beetles and their hidden larvae. So in 1935, they introduced cane toads from Hawaii. The bad news was that the cane toads did not seem to go for the beetles they were *supposed* to eat, and the really bad news was that they seemed to prefer eating everything else instead and they now hunt many species of native invertebrates, fish, amphibians, reptiles, birds and mammals. Only 102 baby toads were originally released, but it is thought there are now more than 200 million of them and that they represent not only a major source of predation but also an ecological disaster for the whole Australian ecosystem.



It's tough enough for any species – dealing with predators, harsh environments and the daily struggle between life and death. It gets even worse when you have to compete with other species for food or somewhere to live. Competition is either natural, such as leopards, lions and hyenas competing for food on the savannas of East Africa, or can be caused by humans – for example, overfishing in our oceans means less food for sharks.

The Labrador duck was, we think, always rare along the eastern coastline of North America and Canada where it lived, but after European settlers arrived, its fate was sadly sealed. Most extinctions have more than one cause and this seems to have been the case with these small brown, black and white ducks. They were hunted, but not as much as other ducks were because, apparently, they tasted pretty bad. That's at least one way to avoid predators. But it seems as though competition



may also have played a part in their extinction. Labrador ducks ate mussels and other shellfish in the shallow waters along the coastline, but as the human population grew, they, too, ate the local shellfish and, as you might expect, they took much more than the ducks. Because the Labrador ducks could never compete with humans, there was less and less food for them, and their population continued to fall. The last living Labrador duck was seen in 1878 and the species was then declared extinct.

COEXTINCTION 

Sometimes a species evolves alongside another species so closely that when one goes extinct, there is nothing the other can do but go extinct too. This might be a specific parasite depending on a specific host species or maybe a particular pollinating insect needing one species of plant in order to survive.

An extreme example of a coextinction is the moa and the Haast's eagle. Moa were huge flightless birds found on New Zealand, with some being as much as 3.6m in height and 230kg in weight. The Haast's eagle was their main

When the large flightless moa was hunted to extinction by humans on New Zealand's South Island, it also meant the end for the Haast's eagle.

