

Our planet has gone through five disastrous species extinctions, a group that scientists named big five. For instance, the extinction of the dinosaurs was part of the five.

Still, nowadays even as you read this presently, a sixth extinction is occurring. We are all to blame for it.

Humans are to blame, through deforestation, industrialization, and the subsequent climate changes, for accelerating the process of extinction for a severe number of animal species. Oceans have acidified; habitats have transformed; biodiversity has reduced to disturbing levels.

Therefore, what can we do? How can we change the course and re-establish some kind of balance in our earth? These book chapters will explain how we've had a part to place in the extinction of species since Homo sapiens first threw a spear, and how if we don't change our ways, we might just go the path of the Neanderthal.

Chapter 1 - Our way of life and how we travel the world has directly led to animal species extinction.

Presently, a lot of species of animals are threatened. Specific animals are endangered with extinction.

Still, have you ever thought of how precisely a species vanishes from the earth?

Historically, extinctions are uncommon and happen really slowly. Still, there have been times of environmental change that have initiated mass extinctions, where a lot of species die within a shortened period of time.

Therefore, while the "normal" rate of extinction – the background extinction rate – is usually slow, it varies by animal group.

For example, from the background extinction rate for mammals, we should anticipate witnessing a species become extinct every 700 years. However, during times of mass extinction, this rate increased. Until now we know of five of that kind of incident that the scientific community names

the “big five.” For instance, the extinction of dinosaurs about 64 million years ago, was part of these five.

However, mass extinctions aren’t only restricted to ancient times. As a matter of fact, we might be going through one at the moment. We understand this by checking the actual rate of species extinction.

Consider amphibians, one of the most threatened classes of animals. Presently, the actual rate of extinction for amphibians is calculated to be 45,000 times more than the background rate!

Therefore, the question is: What is the cause of this calamity?

The real cause is human. Humans are both, directly and indirectly, blamable for species extinction.

Think of the present-day transportation networks. Planes, trains, and ships crisscross the world, bridging continents and indirectly leading to mass extinctions by bringing new organisms into surroundings where they can cause disaster on present species populations.

For example, Panamanian golden frogs, now battle against a dangerous fungus that probably came to Central America from Europe. However, other species like the great auk have been directly wiped out by hunters and by changes done to its habitat.

Therefore, we are the cause of this havoc. However, could we have understood what a deep consequence our behaviors would have on the environment? In order to understand more, let’s examine the history of evolution and extinction.

Chapter 2 - Extinction: slow or fast? Theories have evolved over the centuries as new evidence is discovered.

The notion that a species is able to decline and disappear completely is quite new. As a matter of fact, we have for some a while assumed that the species here in the world would stay the same all the time.

Therefore, when did we eventually know the changing nature of survival in the animal kingdom?

Back then, during the nineteenth century, a French naturalist called Georges Cuvier theorized that animal species could go into extinct via cataclysmic environmental changes.

However, Cuvier's theory was challenged by Charles Lyell a British geologist, who claimed that extinction happens at the exact same speed as the environmental transform. He then mentioned that if the environment transformed slowly; therefore, extinctions as well would happen slowly – an idea chosen over Cuvier's theory of catastrophe.

However, during the 1980s Cuvier's theory gained much traction during that time when Walter Alvarez, a geologist basically discovered new evidence.

When digging through a part of the earth that matched with the end of the Cretaceous era, a time that finished about 66 million years ago, Alvarez discovered that it had a strange amount of iridium, an unusual earth metal discovered mostly in meteorites.

According to this finding, Alvarez proposed a concept to describe the conditions causing the extinction of the dinosaurs. He named his concept impact theory.

Impact theory states that a lot of millions of years ago, a ten-kilometer long meteor strike the earth; its impact kicked up a lot of dust that covered the sun, causing the terrible climate change and the fast death of a lot of species of dinosaurs.

Based on the present research, four out of "big five" mass extinctions were fascinatingly an outcome of climate change prompted by changes in the earth's orbit, as a result of the gravitational pull of other planets in our solar system.

Still, we understand that humans had a part to play in species extinction as well. However, in what way?

Chapter 3 - The process of species extinction has been accelerated by Carbon, via a warming climate.

In order to know the reason why we may be in the sixth stage of species mass extinction, we have to know the things to have done to change the environments—and industrialization is the main cause.

For example, industrial carbon dioxide releases have extremely acidified our oceans, which has caused biodiversity to decline.

However, how did this occur precisely?

The atmosphere and oceans are in continuous exchange: gases that are in the atmosphere dissolve into water, and the gases evaporating from the ocean combine with the air. Therefore, the rising level of carbon dioxide that is in the atmosphere is also increasing the quantity of carbon dioxide present in the oceans.

Still, an acid is formed when carbon dioxide mixes with water. Various studies have demonstrated that our oceans are already 30% more acidic than when industrialization began during the late 1700s.

Acidification is an issue for a number of species. This is because acidification alters the nutrient structure of the ocean; hence, decreasing general biodiversity, as specific species can't get sufficient food to eat. Still, calcifiers, which is an organism with a shell or external skeleton, are the ones that are most at risk of this.

Higher levels of acidity in the oceans signify decreased levels of calcium and carbonate ions, which are the building blocks of shells and external skeletons. Organisms will die if they can't form a protective.

However, that's isn't the only issue. Also, Carbon dioxide is a greenhouse gas that leads to global warming – an extreme issue with consequences that spread well beyond problems for cold-climate species.

Established, if a habitat becomes really warm, an animal could basically move to a colder climate. However, there's an issue: even the coldest habitats on earth, like where polar bears stay, are vanishing.

The unprecedented rate at which the earth is warming signifies that endangered species that might have formerly been able to move to colder climates will now die before they can get an environment to stay.

Also, rising carbon dioxide levels are an extreme issue for species extinction. However, that isn't the only means humans are accelerating extinction.

Chapter 4 - With Automobiles, planes, and trains, we have been able to travel around the globe, to the risk of endangered species.

Additionally to carbon dioxide, deforestation and the negative consequences of contemporary transportation systems are key elements adding to species extinction.

Through deforestation, we damage the habitats and we basically force species into lesser population groups that are then more vulnerable, and perhaps to become vulnerable or go extinct.

Assuming only one male and one female of a species are in existence, the death of either of them would cause trouble for the whole species. This is the reason that islands normally boast less species diversity than mainland habitats do.

Also, that is the exact cause of why deforestation is a danger to biodiversity. It has been estimated by Scientists that shrinking forests signify the extinction of nearly 5,000 species each year. This calculation estimates that tropical forests of the earth, which is a habitat to 2 million species, reduce yearly in size by 1%.

Another issue is how easy it is for us to travel. But, by traveling, we assist in redistributing species across the world, which homogenizes current species while decreasing general biodiversity.

How does this work precisely?

According to Charles Darwin, geographic barriers were crucial to clarify the reasons why areas of the world that shared the same climates like Oceania, Latin America, and Africa, were habitat to completely different species.

Still, during the late nineteenth century, paleontologists discovered an unusual association among fossils on various continents. The later theory of continental drift would clarify this association: that the earth's continents used to be linked, creating one single landmass known as Pangea.

Basically, contemporary technology has rebuilt these old land bridges. The process in which animals and plants used to spread depended on the slow attempt of human migration; nowadays, things move very fast and more often.

Due to that, habitats have started joining while species that formerly existed securely in isolation are now endangered with rival organisms and may vanish completely.

However, although contemporary transportation and deforestation have influenced the rate of extinction, we humans have been supporting extinction since our own initial evolution.

Chapter 5 - Homo sapiens didn't just cause the extinction of the woolly mammoth; however, maybe they caused the extinction of our relatives as well

It's not only the activities of humans since the industrial age that's led to species mass extinctions. As a matter of fact, humans have caused extinctions since the origin of our own species, Homo sapiens.

Big mammals like the rhinoceros reproduce slowly; however, their size defends them from the majority of the natural predators – to be exact, except human predators. Therefore, as the human race moved across the last millennia and started to hunt, the population of the world's big animals reduced.

Some researchers guessed that the population decline was caused by climate change; however, the association was difficult to prove. But, what they did discover and effortlessly prove, was that the place where humans stayed, big animals died all at once.

Humans have been hunters from the very start. Species such as woolly mammoths didn't have any natural predators until humans got into the picture! All of a sudden these big beasts were endangered, and their survival mechanisms were not effective anymore.

Homo sapiens even had a part in the extinction of the Neanderthals. When Homo sapiens went to places that Neanderthals lived, the Neanderthals started to vanish.

However, before the last Neanderthals died, Homo sapiens bred with them. Due to that, presently, some 4% of the population of humans has some Neanderthal genes! This is particularly correct in Eurasia, the previous home of the Neanderthal.

While the Neanderthals often kept put in Eurasia, Homo sapiens journeyed far, getting to untouched areas of the world like the remote islands in the middle of the ocean.

Can you think of the number of people that depart just to be lost at sea before Easter Island was eventually found? Maybe it's this risk-taking action that clarifies the success of our species over our close Neanderthal relatives.

Therefore, fascinatingly, although humans are the reason for the sixth mass extinction, we may also be part of its victims. However, the severe environmental changes we've produced could be the thing that sends us the way of the Neanderthals.

The Sixth Extinction: An Unnatural History by Elizabeth Kolbert Book Review

For as long as humans have stayed on the earth, we have encouraged the extinction of other species. But, the environmental changes we've created have done increasingly destruction in

the latest centuries. If we don't change our approaches soon enough, it could signify the end of human civilization itself.

<https://goodbooksummary.com/the-sixth-extinction-by-elizabeth-kolbert-book-summary/>