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‘Now I am become Death, the destroyer of worlds.’

The Bhagavad-Gita

INTRODUCTION

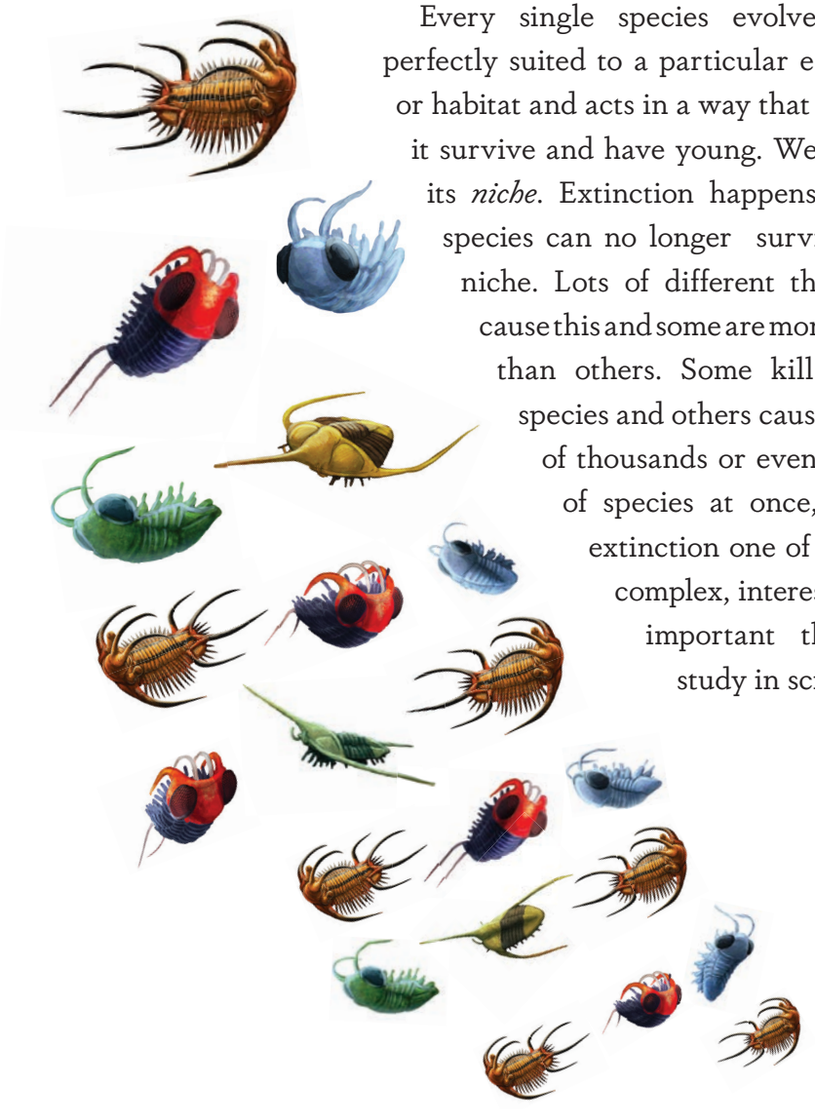
For as long as there has been life on Earth, there has been extinction, and given enough time, all species will one day go extinct. It is all too easy to think extinction is terrible and that we should do all we can to stop a species from going extinct. That makes complete sense, doesn't it? Right now, around one million species of plants, animals and other organisms are at real risk of going extinct because of our actions and we should do all we can to save as many of these wonderful species as possible.

But as bad and as sad as some extinctions are, the process of extinction itself is a natural one, and it is something that helps drive evolution and the development of more species.

it means we have already lost an almost unbelievable five billion species from our planet.

It's nearly impossible to be certain because many of these extinctions stretch back millions (or even hundreds of millions) of years and, because there wasn't a scientist standing there with a camera or a notebook, we shall never know about many of these species. Even today, scientists believe that there may be 10–14 million different species (although some scientists think this figure might even be as high as one trillion) but of those, only 1.2 million have been documented and recorded in a proper scientific way. This means that we don't know about 90 per cent of life on planet Earth right now.

Here's where it gets a little complicated. Extinction is natural. Even we human beings will go extinct one day. It might sound sad but that's because you're thinking from the point of view of a person. We are simply one of those 14 million or so species, remember. Usually, a species has about 10 million years or so of evolving, eating, chasing, playing, maybe doing homework, building nests or even going to the moon before it goes extinct and ends up in the history (or even prehistory) books. Some species last longer than this, some are around for less time.



Every single species evolves to be perfectly suited to a particular ecosystem or habitat and acts in a way that will help it survive and have young. We call this its *niche*. Extinction happens when a species can no longer survive in its niche. Lots of different things can cause this and some are more natural than others. Some kill off one species and others cause the loss of thousands or even millions of species at once, making extinction one of the most complex, interesting and important things to study in science.

Like oceans now, prehistoric marine ecosystems were thriving but inhabited by organisms unrecognisable today. Here, pelagic trilobites swim by giant cephalopods such as *Endoceras*, ancient relatives of octopus and squid.

Understanding evolution can help us explore relationships between ourselves and extinct animals such as the huge *Dimetrodon*, seen here basking in the sun, with a colourful *Varanops* resting on her snout.