

EXTINCTION OF SPECIES IN THE TROPICS

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Keywords: Local extinction, global extinction, functional extinction, patterns of extinction, process of extinction.

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Summary

Extinction is an evolutionary process, and it is as common as speciation. Five great mass extinctions happened in the historical past of the Earth. We presently are observing a sixth great mass extinction, but this time with higher rates of extinction as a consequence of human-caused degradation of Nature. However, some species are more prone to extinction than others. Species with some biological features, such as large body-size, high trophic level (e.g. carnivorous species), small populations, and small geographic range, in general, are more vulnerable to extinction. Besides this, species richness is unevenly distributed on Earth. The area between the Tropics harbors a large number of species and high levels of endemic species, and many of the hot-spots of biodiversity are located in this region. The tropical region also includes most of the species threatened with extinction, and also the majority of those considered extinct. As an evolutionary process, extinction is a long-term process caused by demographic and genetic problems in small populations. Extinctions of species have dire consequences for natural systems, such as the loss of ecological services (e.g. syndromes of seed dispersal and pollination), and for humankind (at the economic, ethical, and aesthetic levels).

1. Introduction

At present, *extinction* is a word often found in the media, and frequently associated with

the biodiversity crisis. When we hear the word extinction, immediately we envision species and populations that have vanished. This is a common interpretation of the concept, but we must understand that extinction is an evolutionary process, and it constitutes the other side of *speciation*. Thus, extinction and speciation are ongoing processes that have taken place since the origin of life on Earth. It is necessary to understand that extinction is a common biological process, and five great mass extinctions happened in the past, all of them caused by physical events: the first mass extinction happened in the Ordovician (ca. 440mya), the second in the Devonian (ca. 370mya), the third in the Permian (ca. 245mya), the fourth in the Triassic (ca. 210mya), and the fifth at the end of the Cretaceous (ca. 65mya). The real problem is the actual rate of extinction. The Earth is losing thousands of species *per year*, and we probably are experiencing the sixth great mass extinction, but this time caused by humankind.

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Biographical Sketches

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