

Foreword

It took evolution millions of years to sculpt the world around us, but fully one quarter (and maybe as many as one third) of the 5,487 mammal species known are now endangered, which means we can expect to see hundreds of them going extinct within just a few decades if there are no concerted efforts to save them.

The staggering magnitude of that potential loss is hard to comprehend—until you encounter the diversity of mammal species whose anatomy, adaptations, and taxonomy are so wonderfully summarized in *Mammal Anatomy: An Illustrated Guide*. The 14 species and groups featured herein receive copious illustration, calling attention to salient aspects of mammal external appearance and skeletal, muscular, nervous, circulatory-respiratory, digestive-excretory, and reproductive systems, clearly explained in a way that shows what makes each one of them special, and what unites them as mammals. Besides *Homo sapiens*, the selection includes denizens of the oceans (gray whales, manatees, dolphins, and seals), favorites of the African savannah (elephants, giraffes, zebras, and lions), those you are apt to see in some American national parks (grizzly bears, wolves, and squirrels), and our closest living non-human relatives, chimpanzees, with whom humans share nearly 99 percent of our DNA.

Ultimately, what makes any species special is the mode of life to which it became adapted. What makes this selection of mammals special is that collectively it illustrates the astonishing diversity of adaptations that give mammals the ability to thrive in nearly every corner of Earth, on land and in the sea. Contrast, for example, the anatomy of a gray whale, making its way from the balmy seas of Mexico to frigid Arctic waters much more easily than a submarine can, with the form of a kangaroo bounding across the hot, dry Australian outback so effortlessly it puts a dirt biker to shame. Then the immensity of what evolution has

accomplished in the way of building mammal biodiversity becomes immediately apparent.

Building that kind of diversity is not an overnight project. The range of anatomy exemplified by whales, kangaroos, and people is the end result of at least 225 million years of evolution's work, which traces back to the earliest mammal we know about, a small shrewlike thing dodging around the feet of dinosaurs. That it took so long for mammalian diversity to build makes it particularly important to know that the survival of most of the mammals selected for this book is threatened.

This series of articles, therefore, is more than a beautifully illustrated guide to an exceptionally interesting set of mammals. It is that, for sure, and for that reason alone it is a superb resource for anyone interested in mammals, including students who simply want a fast go-to for essential facts, as well as specialists who need more comprehensive, topically wide-ranging information that is nicely organized and easy to use. But, in its comparative approach and astute selection of species, this book is also a testament to the intricate ways that nature is built, and what we stand to lose if we allow these species to disappear.

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The articles on mammal anatomy included in this work are also available by subscription online from Marshall Cavendish Digital at www.marshallcavendishdigital.com as part of a larger encyclopedic work, *Animal and Plant Anatomy*, which also contains more than 80 additional articles on the anatomy of other organisms.