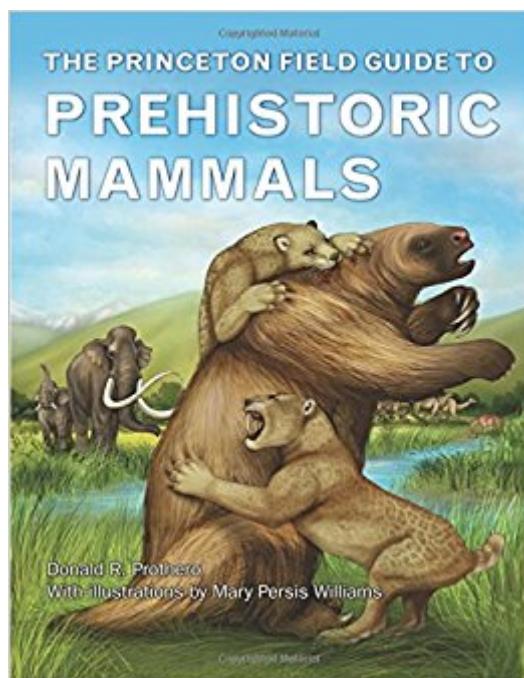


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# The Princeton Field Guide To Prehistoric Mammals (Princeton Field Guides)



## Synopsis

After the mass extinction of the dinosaurs 65 million years ago, mammals became the dominant terrestrial life form on our planet. Roaming the earth were spectacular beasts such as saber-toothed cats, giant mastodonts, immense ground sloths, and gigantic giraffe-like rhinoceroses. Here is the ultimate illustrated field guide to the lost world of these weird and wonderful prehistoric creatures. A woolly mammoth probably won't come thundering through your vegetable garden any time soon. But if one did, this would be the book to keep on your windowsill next to the binoculars. It covers all the main groups of fossil mammals, discussing taxonomy and evolutionary history, and providing concise accounts of the better-known genera and species as well as an up-to-date family tree for each group. No other book presents such a wealth of new information about these animals—what they looked like, how they behaved, and how they were interrelated. In addition, this unique guide is stunningly illustrated throughout with full-color reconstructions of these beasts—many never before depicted—along with photographs of amazing fossils from around the world. Provides an up-to-date guidebook to hundreds of extinct species, from saber-toothed cats to giant mammoths. Features a wealth of color illustrations, including new reconstructions of many animals never before depicted. Demonstrates evolution in action—such as how whales evolved from hoofed mammals and how giraffes evolved from creatures with short necks. Explains how mass extinctions and climate change affected mammals, including why some mammals grew so huge.

## Book Information

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## Customer Reviews

"With a focus on the 66 million years since the end-Cretaceous extinction stripped away all dinosaurs but birds, Mr. Prothero's book ably demonstrates that mammalian evolution has been just as circuitous and strange as that of the terrible lizards. . . . [This book shows] the unexpected variety that life is capable of and raise[s] the question of what the next 235 million years will bring."--Brian Switek, *Wall Street Journal*"In *The Princeton Field Guide to Prehistoric Mammals*, author Donald Prothero . . . introduces readers to an array of real-life, but seemingly fantastic beasts--extinct mammals."--Mindy Weisberger, *LiveScience*"Written by American paleontologist Donald Prothero and beautifully illustrated by renowned scientific illustrator Mary Persis Williams, this publication is a 'must have' for academics and fans of fossils as well as anyone with an interest in general science. . . . Highly recommended."--*Everything Dinosaur* blog"One of the most important things about this book is that it is fully up to date, and thus, the only current mammalian evolutionary overview that is available, to my knowledge. In some areas of fossil mammal research there has been a lot of work over recent years, so this is important. I highly recommend this excellent book."--*Greg Laden's Blog*"Readable and highly informative. . . . I highly recommend this comprehensive and well-illustrated book to non-professionals with proficiency in paleontology and undergraduate students who are interested in the evolutionary history of animals. Furthermore, the book may be a handy guide for professional paleontologists involved in teaching."--Christine Bothmer, *Journal of Paleontological Techniques*

"Up-to-date, comprehensive, and very readable. Prothero is a renowned expert in this field, with decades of experience working on diverse groups of prehistoric mammals. He clearly knows his subject well and skillfully conveys this knowledge to readers."--Spencer G. Lucas, *New Mexico Museum of Natural History and Science*"Prothero knows his fossil mammals."--Christine M. Janis, coauthor of *Vertebrate Life*

Prehistoric mammals are not as fascinating to the public as dinosaurs, and we see many fewer popular books covering the topic. Two earlier attempts by professional paleontologists to cover the whole class that stick in my mind are "The Rise of the Mammals" by Michael Benton (1991) and "National Geographic Prehistoric Mammals" by Alan Turner (2004). The latter is memorable because it is illustrated

by Mauricio Anton, whose work I greatly admire. In this tradition, but obviously much more up to date, is a new book *The Princeton Field Guide to Prehistoric Mammals* by Donald Prothero. Prothero works at the Natural History Museum of Los Angeles County. He has published a few dozen books on a diversity of biological topics (cryptozoology, global warming, the fossil evidence for evolution, etc.). Just a few weeks ago I reviewed *The Princeton Field Guide to Dinosaurs* (Second Edition). This is an illustrated encyclopedia of individual dinosaur species, organized by phylogeny, plus some introductory material. I expected *The Princeton Field Guide to Prehistoric Mammals* to have a similar format. However, as the author explains in the Preface, while there are only several hundred valid dinosaur species, there are several thousand species of living mammals at least a few thousand extinct ones. So TPFGTPM is organized to highlight 15 mammal families, each in its separate chapter, with some of the more important genera emphasized. Aside from the details specific families, there are introductory chapters that include the synapsids (often called "mammal-like reptiles") and mesozoic mammals (who were neither marsupials nor placental mammals). There is a closing chapter on mammal evolution and extinction. As mentioned above, the organization of the mammal families in this book is done phylogenetically. Some phylogenetic information is gotten by comparing the skeletal anatomy of the mammals (much as is done with dinosaurs), but since relatives of some extinct mammals are still alive, we can also compare DNA sequences. In some cases the anatomic and genetic information lead to different conclusions. Two interesting examples: There is a group of mammals called the Afrotheria, which have a common genetic signature, but do not resemble each other in any significant way: elephants, manatees, hyraxes, and elephant shrews. There is a genetic link between whales and hippos that shows they are more closely related to each other than to other artiodactyls (even-toed hoofed mammals). One consequence is that other artiodactyls once thought to be ancestral to whales, e.g. the wolf-like mesonychids, acquired some of their whale-like anatomical features through convergence. On that topic, many examples in TPFGTPM show that convergent evolution among mammal groups is extremely common, and the overall body form of mammals is dictated more by their "job" than by their ancestry. For example, there are many versions of the "wolf" (by which we mean a mid-sized pursuit predator) besides the canine version we have today. Most of us know about the "thalacyine" (marsupial) wolf which has been extinct only for decades. Not too many people are aware of the above-mentioned mesonychids (Paleocene through Eocene), which are artiodactyls.

They strike us as very strange because there are no extant hoofed predators. There are also the “bear dogs” (Oligocene to Miocene) and creodonts (Eocene to Miocene). The same thing could be said about “lions” (Miocene). The “cows” and “flying squirrels.” One of the most interesting discussions in *TPFGTPM* is about extinct families that are poorly organized even now. One example is the uintatheres, the rhino- to elephant-sized herbivorous mammals with large tusks and large knobs on their heads. Much of the confusion in this group was brought about circa 1872 by the 19th Century rival paleontologists Edward Drinker Cope and O. C. Marsh. Each of these men named a large number of species in this group, sometimes naming the same animal twice, sometimes giving the different animals the same name, and always ignoring the names created by his rival. While dozens of names were proposed, a hundred years later only a handful are recognized as valid. Even now, though, it is not clear that all animals assigned to the uintatheres are actually related. *TPFGTPM* is very heavily illustrated, averaging one illustration per page. There are photographs of fossils, clear diagrams (most of which show phylogenetic relationships), and life restorations. The signature type of illustration for this book is the silhouette of a man surrounded by restorations of one to a dozen species in the specific family under discussion. Most of the life restorations are by Mary Persis Williams, who is a well-known scientific illustrator and blogger. In most book reviews I usually make a comment about the “sweet spot” for popular books on paleontology (or science in general). I hope a book will present enough technical material to make it interesting for a knowledgeable amateur like myself, but not assume I am already aware of fiddly anatomical terms. Also, the more unfamiliar material the better. In *TPFGTPM* I encountered many families of fossil mammals I had never heard of before. *TPFGTPM* shows that prehistoric mammals are just as weird and fascinating as dinosaurs, and you should have it in your library.

Though I am not a collector of fossils (I do collect minerals though), just someone who is very interested in the past and wanting to know more about those enigmatic ‘monsters’ of the past, and more than just a pretty picture book. This book provides a short but very concise introduction into the general history and methodologies of paleontology especially as it pertains to the cenozoic era (post dinosaur). It also gives a nice intro into each of the families and genera before listing the best examples of the individual species. There are few skeletal views, but with many of the species the author selected an artist’s impression is provided, and a lot of photographs of fossils and actually still living relatives of animals as well. One thing I liked is at the beginning of each section describing a

basic group a composite picture of the main species together with a human for size comparison. Gives a far better feel for the size of the creature than just giving physical dimensions (which the author does provide within the main text). As the author says in the intro, it is nigh impossible to provide a list of all possible extinct cenozoic animals - there are just too many. This means that some genera (rodents especially) get only a relatively cursory spot in the book. Despite this it is definitely a great guide for the serious collector, a beginning student of paleontology (cenozoic era), and even for just the insanely curious like me.

Purchased this wonderful book for my son and he loves it! It's incredibly informative and well illustrated! We're extremely happy with this wonderful book and I highly recommend it to anyone, child or adult who is interested in prehistoric mammals!

There is much written about dinosaurs but much less and not enough about early mammals their evolution after the extinction of dinosaurs and large marine reptiles. This book does just that. is an excellent for the knowledgeable amateur & student. I recommend it.

This is comprehensive, well organized and easy to read. The drawings are helpful, but not as fanciful as in some other publications.

It's astonishing that such a complete book, with attractive drawings, can be so inexpensive. This is an excellent companion to their field guide for dinosaurs.

I love reading about evolution, especially mammalian evolution and this is one of the best biology books I have read in years.

Terrific book. Best book I have ever seen or read on the prehistoric mammals of the Ice Age era. Very readable. Highly recommended !

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