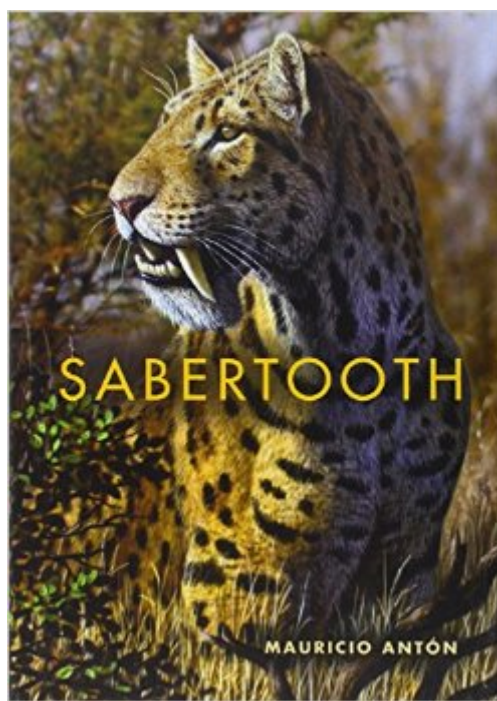


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# Sabertooth (Life Of The Past)



## Synopsis

With their spectacularly enlarged canines, sabertooth cats are among the most popular of prehistoric animals, yet it is surprising how little information about them is available for the curious layperson. What's more, there were other sabertooths that were not cats, animals with exotic names like nimravids, barbourfelids, and thylacosmilids. Some were no taller than a domestic cat, others were larger than a lion, and some were as weird as their names suggest. Sabertooths continue to pose questions even for specialists. What did they look like? How did they use their spectacular canine teeth? And why did they finally go extinct? In this visual and intellectual treat of a book, Mauricio Anton tells their story in words and pictures, all scrupulously based on the latest scientific research. The book is a glorious wedding of science and art that celebrates the remarkable diversity of the life of the not-so-distant past.

## Book Information

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Mammals

## Customer Reviews

The "Life of the Past" series from Indiana University Press seldom disappoints. The latest is "Sabertooth" by Mauricio Anton. I have been a big fan of Anton's paleoart since I saw his illustrations in "The Big Cats and Their Fossil Relatives" from 1997. I really admire Anton's ability to illustrate extinct animals from bones, to musculature, to the fully restored creature. I especially enjoy the way he can illustrate small distinctions between related species. Anton has illustrated many paleontology books written for a general audience, some of which I have reviewed

for the *Paleontograph*, but is the first solo effort I have come across. As far as I can find out, Anton has no formal training in paleontology, but he seems to have a deep knowledge of the subject and can explain things very well. It is certainly unprecedented to have artists become famous non-credentialed paleontologists and write their own books. Stephen and Silvia Czerkas (sculptors rather than illustrators) filled that role circa 1990. For knowledgeable amateurs such as myself, there is a sweet spot in paleontological writing where there is enough technical detail that I am learning a lot of new things, but the author does not assume I already know obscure anatomical and taxonomical terms. "Sabertooth" hits the sweet spot. It covers a variety of topics: the diversity of sabertooths (with a discussion about each species), where sabertooth fossils are found, how sabertooths differ from their nearest non-saber relatives, how the living appearance of sabertooths is restored (Anton can be considered an expert on this), how sabertooths made a living, and how they went extinct. When we hear "sabertooth" we usually think "cat". This is because *Smilodon*, which is known from thousands of specimens from the La Brea tar pits and thus is the most famous and complete sabertooth, is a member of Felidae. This is the family that includes all our modern cats, big and small. (The classical division of sabertooths into "dirk-tooth" and "scimitar-tooth" varieties was developed from the Felidae.) However, one of the most interesting things about saber-teeth is that they evolved independently many times in unrelated carnivores. There is a sister group to the Felidae called the Barbourfelidae, which includes the sabertooth *Sansanosmilus*. There is a sister group to the branch of Carnivora containing cats, hyenas, meerkats, etc. called the Nimravidae. Nimravids superficially resemble cats, but aren't. *Dinictis* is an example of a nimravid sabertooth. Creodonts are an extinct branch of mammals that included many carnivores, although they are not related to the modern order Carnivora. This included the small sabertooth *Machaeroides*. *Thylacosmilus* was a marsupial sabertooth, which is about as unrelated to the other sabertooths as one can get and still be a mammal. It is often compared to *Smilodon* as an extreme example of convergent evolution. Finally, a number of gorgonopsids, large mammal-like reptiles that lived in the Permian, had very enlarged saber-teeth. The obvious difference between sabertooths and close non-saber relatives is that the upper canines are much longer and tend to be blade-like instead of conical. However, there are a lot of other more subtle differences that are seen again and again in unrelated animals. Here is a partial list (applying mostly to the mammals, but some are seen even in the gorgonopsids): The lower canines are smaller than expected. The front of the mandible develops a grooved flange to cover the inner side of the saber-tooth. (Interestingly, *Smilodon* has a very elongated saber, but has a very small flange in the mandible.) The incisors get larger. There are fewer cheek teeth. The meat-shearing carnassial teeth (where they are

present, i.e. in Carnivora) get larger. The cranium gets shallower from top to bottom. The mastoid process gets larger. This anchors the muscle that pulls the head down. The coronoid process on the mandible gets smaller. This is the attachment point of mandible to the temporalis jaw muscle. This is possibly an adaptation to allow a big gape. The neck is longer, but the back shorter. The front legs are more robust.<sup>10</sup> The hind feet are more nearly plantigrade (the foot angled more parallel to the ground), as opposed to digitigrade (walking only on the toes so that the foot is vertical). The presumption is that saber-teeth must have some useful function since they and a constellation of associated features evolved several times independently. However since no modern animal has them, we can only speculate how they were used. A lot of the speculation is based on the observations in the previous paragraph. The current best guess is that they were used to quickly kill very large prey by severing arteries in the neck, as opposed to the way modern big cats kill by crushing the windpipe. This required sabertooths to immobilize their prey using the front limbs before biting, and this in turn required a lot of power as opposed to speed. Most of the penetrating power behind the saber-teeth would have come from the neck instead of the jaw muscles. So this is a very comprehensive treatment of the topic of sabertooths. As you might expect from Anton, the illustrations are plentiful, clear, meticulously accurate, and esthetically pleasing. The only possible thing I would wish for is more detailed information on the gorgonopsids, the only non-mammal sabertooths. However, the fact that they are mentioned at all is a big plus compared to most works on sabertooths.

This is a must have book for fans of paleontology, or just for fans of great prehistoric fauna art. Mauricio Anton reanimated unknown species back to life with his realism and attention to details. The book is great, the charts are based on the latest data and, who knew, our own cat can relate to the information: her ancient DNA line is older than the Panthera lineage. Great book!!!!

The best book about Sabertooths by far, it covers updated information of all you need to know about them, ecology of sabertooth, who is who of sabertooth predators with size of all sabertooth discovered to the day, reconstructed life appearance of all species of sabertooth, assembling skeletons, body proportions, musculature and locomotion, the masticatory apparatus, the neck and head muscles and canine shear-bite, paleopathology, and reconstructing of sabertooth hunting sequence, and comparing their size with modern cats Lions, Tigers and Leopards.

This is the best book ever written (and illustrated) on the sabertooths. Anton's knowledge of the

subject matter is encompassing, and his illustrations are beyond compare. Bravo, Mauricio!

A fairly solid book for any general paleontology enthusiast. I love Mauricio Anton's artwork, but in terms of the written content, this book doesn't cover all that much that his earlier collaboration with Alan Turner - *The Big Cats and Their Fossil Relatives* - doesn't cover as well or better. A lot of the material in this book reads like a rehash of that earlier title, minus the portions on the Felinae (modern-type cats). I was initially very excited to have a book that provides a popular, rather than technical, description of the more obscure sabertooths (especially the nimravids, barbourfelids, and metailurins), but the fact is that this book doesn't have all that much to say about them. It's an important book for being the first to devote itself to such groups in a relatively comprehensive way, but so little is known about the biology and relationships of these animals that Anton has to resort to (what I think of as) filler about the discovery, naming, and research history of the fossil specimens. I wanted the kind of information that would let me envision the life and times of these creatures, but got rather little of that. The entries in the "who's who" section seemed cursory, often more about the curation of specimens than the lives of once-breathing animals. There were some other various technical quibbles as well. Anton persists in referring to basal synapsids (early mammal relatives) as "mammal-like reptiles" even though they are in no way part of the reptile group. Other little bits and pieces were also incorrectly stated here and there, but nothing too serious; usually just somewhat outdated statements about animals outside of the author's specialty. For the most part, Anton's descriptions of phylogeny and cladistics are a very good introduction for the average reader - but with just enough questionable statements to be somewhat confusing. Still, I recommend it for anyone struggling to understand why scientists categorize and name biological groups the way they do. Anton's artwork is amazing, and he is almost unparalleled as a master of prehistoric mammal art. I was, though, a little disappointed to see so many recycled images in this book; I recognized many of them from prior works he contributed to. Nevertheless, all the artwork is utterly top-notch, and my main disappointment was that there weren't as many more new images to revel in as I had expected. The book is full-color on most pages, rather than having just a single color-image section in the middle like most such paleo books. That's definitely a big plus. All in all, an academically respectable and beautifully illustrated book, but if I had to choose between *Sabertooth* and *The Big Cats and Their Fossil Relatives*, I'd choose the latter every time. ~3.5 stars.

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