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***EXTREME MAMMALS: THE BIGGEST, SMALLEST,
AND MOST AMAZING MAMMALS OF ALL TIME***
ON VIEW AT AMERICAN MUSEUM OF NATURAL HISTORY
MAY 16, 2009, THROUGH JANUARY 3, 2010

INTERNATIONAL TOUR BEGINS APRIL 2010

In a captivating new exhibition, *Extreme Mammals: The Biggest, Smallest, and Most Amazing Mammals of All Time*, the American Museum of Natural History explores the surprising and often extraordinary world of extinct and living mammals. Featuring spectacular fossils and other specimens from the Museum's collections, vivid reconstructions, and live animals, the exhibition examines the ancestry and evolution of numerous species, ranging from huge to tiny, from speedy to sloth-like, and displays animals with oversized claws, fangs, snouts, and horns. *Extreme Mammals* opens at the American Museum of Natural History on Saturday, May 16, and will remain on view until January 3, 2010.

“Ranging from the familiar to the wildly exotic, mammals represent some of the most fascinating and extraordinary creatures ever to have lived including, of course, humans,” said Ellen V. Futter, President of the American Museum of Natural History. “By looking closely at this one amazing class of animals—which represents an area of longstanding expertise in the Museum's scientific research—*Extreme Mammals* offers visitors a fun and intriguing opportunity to learn about how life evolved, why animals may, despite sharing some key characteristics, look and behave so differently from one another, and how there can be such extraordinary diversity within a single group.”

Extreme Mammals examines how some lineages died out while others diversified to form the groups of well-known mammals living today. Highlights of the exhibition include taxidermy specimens—from the egg-laying platypus to the recently extinct Tasmanian wolf (also known as Tasmanian tiger)—and fleshed-out models of spectacular extinct forms, such as *Ambulocetus*, a “walking whale.” Visitors will encounter an entire skeleton of the giant hoofed plant-eater *Uintatherium*, with its dagger-like teeth and multiple horns; the skeleton model of *Puijila darwini*, a newly discovered extinct “walking seal” from the High Arctic with webbed feet instead of flippers;

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a life-size model of *Indricotherium*, the largest land mammal that ever lived; one of the oldest fossilized bats ever found; and an impressive diorama featuring the once warm and humid swamps and forests of Ellesmere Island, located in the high Arctic, about 50 million years ago.

Through the use of dynamic media displays, animated computer interactives, hands-on activities, touchable fossils, casts, taxidermy specimens, and a colony of live sugar gliders—extreme marsupials from Australia—the exhibition will highlight distinctive mammalian qualities and illuminate the shared ancestry that unites these diverse creatures.

“Mammals are old—as old as the dinosaurs. But all dinosaurs, except for the lineage that gave rise to living birds, went extinct 65 million years ago,” said Michael J. Novacek, Senior Vice President; Provost of Science; and Curator, Division of Paleontology. “Mammals survived this great extinction event and even further diversified, evolving into the wondrous and sometimes strange creatures that are still with us today. This exhibition not only brings us close to this great flourish of mammals present and past, it shows how mammals are powerful examples of evolution in action.”

“This exhibition highlights the striking array of living and fossil mammals, so our visitors can explore the remarkable diversity of species, anatomies, and ecological specializations that occur in mammals,” said John J. Flynn, Frick Curator of the Division of Paleontology, Dean of the Richard Gilder Graduate School, and curator of *Extreme Mammals*. “Extinct mammals often are viewed with curiosity, awe, or admiration because they are so different from familiar living organisms. In *Extreme Mammals*, such unusual taxa are compared to their ancestors, closest relatives, or contemporaries to document and explain what is ‘normal’ and what is ‘extreme.’ The exhibition focuses on the extraordinary qualities of extinct and living mammals, revealing them to be much more than just furry, warm-blooded animals that nourish their young with milk.”

Extreme Mammals is organized by the American Museum of Natural History, New York (www.amnh.org), in collaboration with the California Academy of Sciences, San Francisco; Cleveland Museum of Natural History; and the Canadian Museum of Nature, Ottawa, Canada.

Funding for *Extreme Mammals* has been provided by the Lila Wallace-Reader’s Digest Endowment Fund. Additional generous support for *Extreme Mammals* has been provided by the Bill and Ann Ziff Foundation, the Eileen P. Bernard Exhibition Fund, and Harlan B. Levine, MD and Marshall P. Levine.

Highlights of the Exhibition

The exhibition is divided into nine sections—Introduction, What is a Mammal?, What is Extreme?, Head to Tail, Reproduction, Mammals in Motion, Extreme Climates, Extreme Isolation, and

Extreme Extinction—and offers extensive detail on the evolutionary history and great family tree of mammals.

- **Introduction:** Upon entering the gallery, visitors are asked “What is extreme for mammals?” and discover models of the largest and smallest land mammals ever found: an overwhelming **15-foot-tall model of *Indricotherium***, an ancient rhinoceros-relative that was the largest mammal to walk the Earth; and a **life-sized model of the extinct shrew-like *Batodonoides***, the smallest extinct mammal ever, which weighed less than a twentieth of an ounce, or the equivalent of a dollar bill. The most extreme sizes for creatures living today include the **200-ton blue whale, the largest animal—mammal or otherwise—ever known**; and the **bumblebee bat, the smallest living mammal**, literally no bigger than a bee and as light as a dime.
- **What is a Mammal?** Before exploring more extremes, visitors are introduced to the basics of mammal evolution and biology. There are more than 5,400 mammal species alive today, classified into 20 different groups, called orders. About 300 million years ago, the evolutionary branch of the tree of life that includes mammals split off from the branch containing reptiles. For over 130 million years, mammals lived side by side with the now extinct large dinosaurs, and some early mammal relatives are even mistaken for dinosaurs, such as the sail-back synapsid ***Dimetrodon*, a fossil featured in this section**. The **fossil skull of the more mammal-like *Cynognathus*** shows the specialized or differentiated teeth of early mammal ancestors, but not all the characteristics of the living groups of mammals. Additional characteristics unique to mammals include nursing their young with milk; three middle-ear bones; a diaphragm for breathing; a secondary palate that allows simultaneous eating and breathing; and a warm, stable body temperature.
- **What is Extreme?** Typical characteristics of mammals—having hair, possessing three middle ear bones, and being warm-blooded—are extreme compared to other groups of animals. The **skeletons of *Uintatherium***—the first giant mammal that evolved after large dinosaurs became extinct—**an opossum**, and a **cast of a human skeleton**, illustrate a range of combinations of “normal” and “extreme” mammal qualities. While many features of an opossum are normal for mammals, like its body size, the Virginia opossum’s prehensile tail, which it uses like an extra limb to grasp or hang from branches is an exceptional feature. Standing five-feet-tall at the shoulders, the *Uintatherium*’s huge body, bony horns, dagger-like teeth, and tiny brain for its body size are all unique features

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compared to other mammals. And humans are out of the ordinary with their large brain for their body size and ability to walk upright on two legs. There are very few other bipedal mammals, but they are mostly hoppers like kangaroos. Humans also have some normal features compared to other mammals, such as three middle ear bones and five digits on each hand and foot.

- **Head to Tail:** Horns, tusks, noses, brains, body armor, and tails have come a long way in the evolutionary history of mammals. The purposes of these traits may include self-defense, recognizing kin, or attracting mates. For example, the Indonesian **babirusa pig** (*Babyrousa babyrussa*), **a skull of which is on display**, uses teeth that grow through the bones and skin of the top of its snout for display and fighting. The **complete fossil skeleton of a glyptodont** shows how this car-sized armadillo-relative was covered with a thick, bony shell, or carapace, to protect itself from large predators. Younger visitors have the opportunity to crawl into a **model of a glyptodont's shell to experience what it feels like to be sheltered by this protective body armor**. The **life-sized model of *Macrauchenia*** features a camel-like body, giraffe-like neck, and elephant trunk-like nose. While a specimen with a preserved nose has never been found—*Macrauchenia* went extinct 10,000 years ago—the reconstruction of its unusual proboscis or trunk is based on skull features found in mammals with such specialized noses and a comparison of early and later members of the same group.
- **Reproduction:** Giving birth to live, well-developed offspring is “normal” for most mammals, but more than 300 species of living extreme mammals do things differently. Monotremes, mammals that lay eggs, and marsupials, mammals that give birth to very immature offspring and often have pouches, are each extraordinary when it comes to reproduction and far removed from the more common placental mammals, which have babies that develop for a long period within the womb. Are monotremes really that unusual for laying eggs? Just a handful of mammals lay eggs, including the **platypus and echidnas featured** in this section. However, egg-laying is the norm in other vertebrate groups like birds, reptiles, and amphibians. **Sugar gliders—live and on display in a specially designed habitat**—may look like American “flying” squirrels, but they are actually marsupials and more closely related to kangaroos and koalas. Like all marsupials, sugar gliders give birth to very immature young that typically grow to independence in a pouch while drinking their mother’s milk. Among the eight taxidermy specimens on display in this section is a **specimen of the spectacled bear**, which shows how some placental mammals also give birth to unusually

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immature young. Adult spectacled bears tip the scales at around 200 to 300 pounds, but they weigh less than one pound at birth.

- **Mammals in Motion:** Whether they move around on land, in water, or by air, mammals have developed amazing features to get from one place to another. The **skeleton of the *Glossotherium myloides***, an extinct ground sloth from South America that was a slow-moving knuckle walker, shows how gigantic these mammals could grow to be. About 50 million years ago, some groups of mammals began to shift from land to ocean life. A **life-size relief model of *Ambulocetus natans***, the extinct “walking whale,” vividly depicts a transitional form between modern-day whales and their extinct land-living ancestors. The **cast of the skull and partial skeleton of *Puijila darwini***, or “walking seal relative,” has otter-like limbs and a seal-like head. Discovered in the High Arctic in 2007, scientists have described *Puijila darwini* as another example of a transitional fossil—a missing link in the evolution of pinnipeds, the group that includes today’s seals, sea lions, and walruses. A few mammals glide through the air, such as lemurs and squirrels, but only bats can truly fly. ***Onychonycteris finneyi*, a spectacular 52-million-year-old bat fossil on display**, represents the most primitive bat species known to date and demonstrates that these animals evolved the ability to fly before they could echolocate, or detect objects by emitting sounds and gauging their reflections. First discovered in Wyoming in 2003, this bat species was described last year in a study led by Nancy Simmons, Chair of the Division of Vertebrate Zoology and Curator at AMNH. Of the more than 5,400 species of mammals that exist today, over 1,100 are bats.
- **Extreme Climates: A large-scale, intricately detailed diorama of Ellesmere Island**, located 600 miles from the North Pole, provides an insightful glimpse of this area 50 million years ago. At that time, the Earth was significantly warmer and Ellesmere Island was covered mostly with forests. This reconstruction shows a once warm, humid, and swamp-like forest, unlike the bitter-cold Arctic of today, that was home to mammals that lived in marshes or could climb trees. Among the models of extinct mammals in the diorama, meticulously created by Stephen Quinn, AMNH scientists, and designers from the AMNH Department of Exhibition, are ***Vulpavus***, a carnivore that had a long thin body and tail, well suited for quick movements both in trees and on the ground; ***Coryphodon***, a short-tusked hippo-like wader; and ***Thuliadanta***, an extinct tapir that had a flexible, trunk-like snout. In contrast to the lush vegetation and diverse mammals 50 million years ago,

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today the plants on Ellesmere Island are only a few inches tall at most, and fewer than a dozen species of land mammals live there, including musk ox, caribou, polar bear, and arctic hare.

- **Extreme Isolation:** How do new species evolve? One way is when a population of animals is completely cut off from others of the same group and they can no longer interbreed. Madagascar, Australia, and South America existed as isolated islands and continents for tens of millions of years, leading to the evolution of an incredible diversity of mammals found nowhere else on Earth. Impressive **fossils of the extinct hoofed plant-eaters *Scarrittia* and *Astrapotherium*** illustrate the concept of convergent evolution, the appearance of similar features in distantly related organisms living in similar environments. While *Scarrittia* looked like a rhino or horse, it was not closely related to either. *Astrapotherium* developed large tusks and a long trunk, but was not closely related to elephants found on other continents. A **scientist-at-work video** explores the unique mammalian forms that existed while South America was an isolated continent during most of the past 90 million years, in the context of the fieldwork and research of AMNH curator John Flynn and his U.S. and Chilean colleagues in the Andes Mountains of Chile. On display are several of their recent groundbreaking discoveries from South America, on loan from the National Museum of Natural History of Chile, including the earliest known complete monkey skull ever found on that continent, perfectly preserved in volcanic ash.
- **Extreme Extinction:** Mass extinctions, or the rapid loss of a great number of species, has happened at least five times over the past 500 million years, with the possibility of a sixth occurring today. Climate change, hunting by humans, an impact or atmospheric explosion of a comet, and the introduction of new diseases are some of the drivers that may have been behind the permanent disappearance of many large mammalian species about 12,000 years ago. Today, human-caused environmental changes and habitat loss threaten more species. Concluding the exhibition are the remarkable **fossil skulls and skeletons of *Smilodon fatalis***, a massive saber-toothed cat, and *Canis dirus*, the dire wolf, both of which roamed North America and died out at the end of the last Ice Age. On view is an amazing taxidermy **specimen of one of the last-known Tasmanian wolves** (also known as Tasmanian tigers). After intense hunting, the species went completely extinct as recently as the mid-1930s. Remarkably, even with 25 percent of living species of mammals on the brink of extinction, there are many more mammals yet to be discovered. Scientists have found hundreds of previously unknown species of mammals in the last

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few decades, including several featured here, such as the **tube-lipped nectar bat**, from the Andes Mountains of Ecuador and a **striped rabbit** from the Annamite Mountains of Laos and Vietnam—a life-size model of which is included in the exhibition.

Exhibition Organization and Tour

Extreme Mammals is designed and produced by the American Museum of Natural History's Department of Exhibition under the direction of David Harvey, Senior Vice President for Exhibition.

Extreme Mammals will remain at the Museum until January 3, 2010, and will begin touring on April 3, 2010. Currently, scheduled stops include California Academy of Sciences, San Francisco (April 3–October 11, 2010); The Cleveland Museum of Natural History (October 29, 2010–April 15, 2011); and the Canadian Museum of Nature, Ottawa (June 4–November 6, 2011).

Extreme Mammals on the Museum Website

Online visitors can learn about *Extreme Mammals* by visiting the “On Exhibit” section of the Museum's website, www.amnh.org. The website www.amnh.org/extrememammals features facts about the mammals highlighted in the exhibition; listings of exhibition-related public programs at the Museum; links to related educational resources; videos; and a 3D interactive model of the extinct shrew-like *Batodonoides*, the smallest mammal known. Online visitors with a webcam can even “hold” the *Batodonoides* in their hand and share him with friends. Visitors to the website can also purchase tickets.

Special Programming

A series of lectures for adults and educational programming for children are being offered in conjunction with *Extreme Mammals*. Programming includes large-scale events like the **Milstein Science Series: Identification Day** (June 13, 2009), the unique **Extreme Mammals Camp** (June 29–July 3, 2009 and August 3–7, 2009), and popular live animal presentations, such as **Wild, Wild World: Bats** (October 24, 2009).

Retail

Accompanying the exhibition is a special gift shop on the fourth floor that offers visitors a wide array of items and gifts inspired by the wonderful mammals featured in the exhibition. **The Extreme Mammals Shop** will be open during the run of the exhibition. (*For more information on retail items, please see the accompanying release on **The Extreme Mammals Shop**.*)

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Expeditions

AMNH Expeditions, the Museum's education travel program, will be offering awe-inspiring trips to South Africa, Newfoundland, The Galápagos, and Panama and Antarctica in 2010. AMNH Expeditions offers unique programs to extraordinary destinations, unparalleled access to world-famous sites, exotic specimens, diverse people and cultures, and the exceptional educational content that is provided by an international network of scholars, world leaders, community members, friends, and partner institutions. (*For more information, please see the accompanying release on **AMNH Expeditions.***)

American Museum of Natural History (www.amnh.org)

The American Museum of Natural History is one of the world's preeminent scientific, educational, and cultural institutions. Since its founding in 1869, the Museum has advanced its global mission to explore and interpret human cultures and the natural world through a wide-reaching program of scientific research, education, and exhibitions. The Museum accomplishes this ambitious goal through its extensive facilities and resources. The institution houses 46 permanent exhibition halls, state-of-the-art research laboratories, one of the largest natural history libraries in the Western Hemisphere, and a permanent collection of more than 30 million specimens and cultural artifacts. With a scientific staff of more than 200, the Museum supports research divisions in Anthropology, Paleontology, Invertebrate and Vertebrate Zoology, and the Physical Sciences. The Museum shares its treasures and discoveries with approximately four million on-site visitors from around the world each year. AMNH-produced exhibitions, Science Bulletins, and Space Shows can currently be seen or are being installed in over 80 venues in 20 countries on five continents in engagements that reach audiences of millions. In addition, the Museum's website, www.amnh.org, extends its collections, exhibitions, and educational programs to millions more beyond the Museum's walls.

Collaborators

California Academy of Sciences, San Francisco (www.calacademy.org)

"We don't often think of ourselves as extreme mammals, since we don't have long horns or venomous spurs," said Dr. Zeresenay Alemseged, Curator of Anthropology at the California Academy of Sciences. "However, we are without a doubt one of the most extreme mammals that evolution has produced. Our brain-to-body weight ratio is higher than any other mammal on Earth, and our ability to make and use complex tools sets us apart from all other life forms. That trait has enabled us to occupy

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virtually all parts of our planet and even explore others.” Dr. Alemseged’s research, including his discovery of the oldest and most complete known hominin child, will be featured in a video included in the exhibition during its presentation in San Francisco, which begins in April 3, 2010.

The new California Academy of Sciences is the only institution in the world to combine a museum, aquarium, planetarium, and world-class research and education programs under one roof. This unique combination allows visitors to explore the depths of a Philippine coral reef, climb into the canopy of a Costa Rican rainforest, and fly to the outer reaches of the Universe—all in a single visit. Designed by award-winning architect Renzo Piano, the building sets a new standard for sustainable architecture and recently received the highest possible rating from the U.S. Green Building Council. It also provides a home for the Academy’s research scientists, who launch dozens of expeditions each year to explore the natural world, and the museum’s 20 million research specimens—essential tools for comparative studies on the history and future of life on Earth. Admission to the Academy is: \$24.95 for adults; \$19.95 for youth ages 12 to 17, Seniors ages 65+ and students with valid ID; \$14.95 for children ages seven to 11; and free for children ages six and younger. The Academy is free to the public on the third Wednesday of each month. Admission fees include all exhibits and shows. Hours are 9:30 am–5 pm Monday–Saturday, and 11 am–5 pm on Sunday. The Academy is closed on Thanksgiving and Christmas. www.calacademy.org. (415) 379-8000.

The Cleveland Museum of Natural History (www.cmnh.org)

"*Extreme Mammals* not only introduces visitors to some of the most fascinating mammals that have lived during the past 65 million years, but it also provides an evolutionary context for the Cleveland Museum of Natural History's research in human origins and highlights current research in fossil mammals," said Dr. Darin Croft, Assistant Professor, Department of Anatomy, Case Western Reserve University; Research Associate, Department of Vertebrate Paleontology, Cleveland Museum of Natural History.

The Cleveland Museum of Natural History, incorporated in 1920, has inspired a passion for nature and science among generations of people in Northeast Ohio and around the world. With outstanding collections, research in 11 natural science disciplines, educational programs and exhibits, the Museum is a resource for scientists and students from kindergarten to university. The Museum actively conserves biological diversity through the protection of nearly 5,000 acres of natural areas. It promotes health education with local programs and distance learning that extends across the globe. And, with its GreenCityBlueLake Institute, the Museum is becoming a center of thought and practice

for the design of green and sustainable cities. The Museum is located at 1 Wade Oval Drive, University Circle, Cleveland, OH 44106. 216-231-4600 or 800-317-9155. www.cmnh.org.

Canadian Museum of Nature, Ottawa, Canada (nature.ca)

“We’re excited that *Puijila darwini* is included in the *Extreme Mammals* show,” said Dr. Natalia Rybczynski, a vertebrate palaeontologist with the Canadian Museum of Nature who led the scientific expedition that discovered this new animal in Canada’s High Arctic. “This fossil—roughly 23 million years old—provides a first glimpse into the early phases of the land-to-sea transition of pinnipeds, a group that today includes seals, sea lions, and walruses.”

The Canadian Museum of Nature is Canada’s national museum of natural history and natural sciences. It promotes awareness of Canada’s natural heritage through permanent and travelling exhibitions, public and school programmes, a comprehensive web site nature.ca, active scientific research, and the maintenance of a 10-million-specimen collection. Visit the new *Puijila darwini* web site at nature.ca/newspecies.ca.

At the American Museum of Natural History

The Museum offers a broad array of activities for adults, children, families, students, educators, and scientists. These range from special exhibitions to symposia, lecture series, workshops, and film festivals. Highlights include *Frogs: A Chorus of Colors* (May 30, 2009–January 3, 2010), back by popular demand, a delightful exhibition of 200 live frogs that introduces visitors to their colorful and richly diverse world; *Climate Change: The Threat to Life and A New Energy Future* (October 18, 2008–August 16, 2009), which addresses one of the most complex and urgent scientific and social issues of the 21st century: global climate change; *On Feathered Wings* (June 21, 2008–August 30, 2009), an exhibition of more than 40 colored photographs that portray dramatic images of birds in flight, shot from the collective lenses of four of the most acclaimed aviary photographers around the world and representing nearly every continent; *Saturn: Images from the Cassini-Huygens Mission* (April 26, 2008–July 22, 2009), an exhibition of over 50 spectacular photographs captured by NASA’s Cassini orbiter and the European Space Agency’s Huygens lander; the Hayden Planetarium Space Show *Cosmic Collisions*, narrated by Robert Redford; and *Sonic Vision* (shown Friday and Saturday evenings), the digitally animated alternative music show in the Hayden Planetarium, with a mix by Moby.

Hours

The Museum is open daily, 10 am–5:45 pm

The Museum is closed Thanksgiving and Christmas.

Space Show and *SonicVision* Hours

The Space Shows are shown every half hour Sunday–Thursday and Saturday, 10:30 am–4:30 pm, and Friday, 10:30 am–7 pm. *SonicVision* is shown Fridays and Saturdays at 7:30 and 8:30 pm.

Admission

Suggested general admission, which supports the Museum’s scientific and educational endeavors and includes 46 Museum halls and the Rose Center for Earth and Space, is \$15 (adults) suggested, \$11 (students/seniors) suggested, \$8.50 (children) suggested.

The Museum offers discounted combination ticket prices that include suggested general admission plus special exhibitions, IMAX films, and Space Shows.

- Museum plus special exhibition, IMAX film, or Space Show: \$24 (adults), \$18 (students/seniors), \$14 (children)
- Museum Supersaver (includes Space Show, IMAX, and all special exhibitions): \$32 (adults), \$24.50 (students/seniors), \$20 (children)

Visitors who wish to pay less than the suggested Museum admission and also want to attend a special exhibition, IMAX film, or Space Show, may do so only on-site at the Museum. To the amount they wish to pay for general admission, they should add \$20 (adults), \$16.50 (students/seniors), or \$11 (children). All prices are subject to change.

Public Information

For additional information, call 212-769-5100 or visit the Museum’s website at www.amnh.org.

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