



AMERICAN MUSEUM OF NATURAL HISTORY

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**SPIDERS ALIVE!
ON VIEW AT THE AMERICAN MUSEUM OF NATURAL HISTORY
FROM JULY 28, 2012, UNTIL DECEMBER 2, 2012**

EXHIBITION EXPLORES THE FASCINATING AND COMPLEX WORLD OF SPIDERS

Spiders Alive!, a new exhibition on view at the American Museum of Natural History from **July 28, 2012, through December 2, 2012**, features approximately 20 species of live spiders and highlights this intriguing animal group's anatomy, behavior, and unique characteristics. The Museum, which has the world's largest research collection of spiders, has been at the forefront of studying spider diversity for over 75 years. For centuries, spiders have inspired mythmakers from Ovid to E. B. White to the creators of the eponymous superhero, but their actual role in diverse ecosystems around the globe is just as captivating.

Among the most versatile animals on the planet, spiders inhabit every continent but Antarctica and are able to survive in environments that range from deserts to rainforests to crowded cities. They can be easy to miss, in part because many are secretive or too tiny to catch human eyes, but spiders are important predators. Without them, insect populations would explode. By one estimate, the spiders on one acre of woodland alone consume more than 80 pounds of insects a year. Scientists have identified more than 43,000 species to date and think there are at least as many out there to be discovered.

Spiders Alive! continues a tradition of Museum exhibitions that bring people, especially children and families, face-to-face with ambassadors from the natural world," said Ellen V. Futter, President of the American Museum of Natural History. "In this exhibition, as in previous popular presentations of live lizards, snakes, frogs, and butterflies, our visitors will meet some of the world's most exotic and fascinating creatures who have much to teach us

about the diversity of life, the fragility of natural systems, and our own responsibility to study and steward life on Earth.”

“*Spiders Alive!* represents a new type of exhibition for the Museum,” said Norman Platnick, curator emeritus in the Division of Invertebrate Zoology and curator of *Spiders Alive!*. “In addition to using a wide range of live arachnids—including scorpions, tarantulas, and orb-weavers—viewers will be able to interact directly with explainers, Museum staff, and volunteers who will highlight some of the fascinating aspects of the structure and behavior of these diverse organisms in a regularly scheduled program of live demonstrations. This exhibition also gives us a chance to showcase some of our recent research, both in the field and in the lab.”

Spiders, which are not insects, belong to the class Arachnida along with scorpions, mites, whip scorpions, and harvestmen, among others. Whereas insects have six legs, a three-part body, antennae and usually wings, and compound eyes, spiders have eight legs, a two-part body, no antennae or wings, and simple eyes.

In *Spiders Alive!*, visitors will explore spiders’ anatomy and evolutionary history, learn about their signature traits—venom and silk-making—and be surprised by little-known defense mechanisms such as mimicry and noise-making. In addition to live spiders representing approximately 20 species, the exhibition will also include larger-than-life models of spiders, a **climbable spider model 50 times life size**, and a **rare 100-million-year-old fossil of a spider in limestone**. A **robot prototype**, inspired by spiders and created to be light and agile to tackle unstable ground, will also be on display. **Museum staff will be presenting live arachnids for visitors to see up close**, and the exhibition will focus on debunking spider myths such as that spiders need gravity to build webs, that all spiders neglect their offspring, and that all spider bites are harmful to humans. Videos featured in the exhibition include a short feature about Curator Norman Platnick’s field expedition to study goblin spiders in Ecuador, a short narrated program about the dazzling variety of spiders, and segments showing spiders in action: a diving bell spider living underwater, a southern black widow spinning silk, and an orb weaver constructing its web.

Among the live spiders visitors will encounter in this exhibition are the **goliath bird eater**, one of the largest spiders in the world, whose prey includes snakes, mice, and frogs; the

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western black widow, a member of one of the few North American spider groups that can be harmful to people; the **fishing spider**, which senses prey by resting its front legs on the surface of the water; and the **golden orb-web spider**, which weaves a golden web that can reach more than 3 feet in diameter. Species from other arachnid orders will also be on display, including **African whip spiders**, whose whip-like feelers, up to 10 inches in length, help the animal find its way; the **giant vinegaroon**, which may spray a foul-smelling vinegar-like chemical from its abdomen if disturbed; and the **desert hairy scorpion**, the largest scorpion in America.

Exhibition Highlights

- At the entrance to the exhibition, visitors encounter a striking spider sculpture by the late French-born American artist Louise Bourgeois. Famous for her renderings of arachnid forms, the artist evoked her beloved mother – a weaver – who was “deliberate, clever, patient, soothing, reasonable, dainty, subtle, indispensable, neat, and as useful as a spider.”
- The **Introduction** welcomes visitors with three live examples of ornamental tarantulas that can be as colorful as tropical birds, a sharp contrast to the fearsome, dark, and dangerous creatures many might imagine.
- **Anatomy** highlights spiders’ anatomical features and behaviors. Hanging above this section is a **40-foot-long model** of the golden orb-web spider (*Nephila pilipes*) – an impressive spider found in Asia and Australia. While unique in many ways, it also shares some basic characteristics with other spiders: eight eyes; a carapace, which is sometimes compared to a crab’s shell, that covers a spider’s front half; four pairs of legs, each with seven segments covered with tiny hairs that enable the spider to taste and sense vibrations; an abdomen; narrow “waist” connecting the two body segments; and feelers for touching, tasting, and handling prey.
- **Diversity** reveals the astonishing variety of spider habitats, reproductive behaviors, life spans, appearances, and hunting styles. Spiders evolved more than 300 million years ago, long before dinosaurs walked the Earth. The rarity of spider fossils makes it difficult to pinpoint when the group first appeared. Spiders do not preserve well in sediment because they have a relatively soft “shell,” or exoskeleton; in fact, for

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every 1,000 or so insect fossils found, there's only one spider. This section includes a **rare 100-million-year-old fossil of a spider in limestone**. Also on display is a spider trapped in tree resin about 20 million years ago. Over time, the resin fossilized into amber, preserving the animal inside.

- **Venom** examines the powerful concoction of biological agents that most spiders usually employ to paralyze their target. Since spiders eat almost any suitable animal that comes their way, their venoms have to work on a variety of creatures, mostly insects. Each species has its own complex mixture made up of dozens of different ingredients. This section includes a **vial of antivenom** for black widow bites and a large model of a brown recluse's chelicerae – paired structures that help the spider grasp food, dig, and inject prey with venom. Other defensive measures discussed include giving up a leg to escape a predator, using mimicry to blend into its surroundings, and, in the case of many tarantulas, flicking sharp hairs from their abdomens that can become embedded in the target's skin, eyes, and respiratory tract.
- **Silk** explores the many ways this extraordinary material – which is extremely strong, elastic, and lightweight – is important to spiders. Spiders use silk to build webs, protect eggs, wrap their prey, and as a safety line or a sail. Humans have been coming up with ways to use silk for centuries, although to date, mass production of synthetic silk remains elusive. This section includes a **real silver argiope spider web**, which has been colored and preserved. Its most striking feature, an 'X' running through it, is something of a mystery. Many spiders embellish their webs with these designs, called stabilimenta, but the reason is unknown. Scientists think stabilimenta may attract insects by reflecting light, warn birds away, or camouflage the spider from predators.
- **Conservation** discusses how spiders, like many other animals, are threatened by habitat destruction and introduced species. Due to their small size, spiders can be overlooked in conservation planning. Researchers from institutions around the world, including the Museum, are studying these animals and working on identifying biodiversity hotspots, or small areas of particular biological importance. The Museum's collection – the largest in the world, with more than 1 million spider

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specimens – is a crucial tool for documenting the world’s spider diversity and planning for the animals’ protection. For example, only 459 species of goblin spiders were known in late 2006. Today, the count is up to more than 1,000, thanks to an ongoing global study led by Museum researchers.

Live Species Featured in *Spiders Alive!*

- **Indian ornamental** (*Poecilotheria regalis*), **Metallica tarantula** (*Poecilotheria metallica*), and **Ivory ornamental** (*Poecilotheria subfusca*): These ornamental tarantulas are as colorful as tropical birds, a sharp contrast to the fearsome, dark, and dangerous creatures many imagine.
- **Trapdoor spider** (*Liphistius dangrek*): These spiders spend most of their time in underground burrows, emerging mainly to grab prey. Their rear half is segmented, a trait visible in some of the earliest spider fossils.
- **Wolf spider** (*Hogna antelucana*): This active hunter searches for food on foot, aided by sharp vision and its ability to sense vibrations – like those of the beating wing on an insect or the patter of steps on the soil.
- **Fishing spider** (*Dolomedes okefinokensis*): Large fishing spiders rest their front legs on the surface of the water on the shoreline trying to sense vibrations from prey. When something gets close, the spider pounces.
- **Desert hairy scorpion** (*Hadrurus arizonensis*): The largest scorpion in North America (reaching 10 to 18 cm), this arachnid beats the daytime heat of its desert home in burrows and hunts in the evening, feeding on insects, spiders, lizards, and even an occasional small mammal.
- **Tailless whip scorpion** (*Damon variegatus*): Not actually a scorpion, this arachnid waves its first pair of legs around to feel its way. This species makes a cameo appearance in the movie *Harry Potter and the Goblet of Fire*, in which one character wrongly suggests that its bite is lethal.
- **Giant vinegaroon** (*Mastigoproctus giganteus*): Like a skunk, this arachnid shoots a foul-smelling spray from its abdomen if disturbed.
- **Brown recluse** (*Loxosceles reclusa*): This spider is identified by a dark, violin-shaped mark on its head. Its venom can cause a deep wound in humans that takes weeks or

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even months to heal and can produce symptoms such as nausea and a fever.

- **Western black widow** (*Latrodectus hesperus*): One of the few species harmful to people in North America, the black widow can be identified by the red hourglass shape on its underside.
- **Mexican red knee** (*Brachypelma smithi*): This stunning tarantula, which lives mainly on the Pacific coast of Mexico, resides in burrows, hurrying out to prey on insects, small frogs, lizards, and mice.
- **Goliath bird eater** (*Theraphosa stirmi*): One of the biggest spiders in the world, it preys on snakes, mice, and frogs but, despite the name, rarely birds.
- **Golden orb-web spider** (*Nephila pilipes*): Found in the Southeast Asian rainforest, this large spider has yellow on its abdomen and spins a golden web.
- **Orb weaver** (*Argiope sp.*): Members of this genus are found all around the world and spin large webs that often contain striking designs. *Charlotte's Web* author E.B. White, who consulted with a Museum curator while writing the classic children's book, named the main character Charlotte A. Cavatica after a common orb weaver, *Araneus cavaticus*.
- **Funnel-web spider** (*Sosippus californicus*): This spider spins a sheet-like web attached to a narrow tube, or funnel. Sitting at the mouth of the tube, the spider waits to strike after feeling vibrations of prey crossing the web.
- **Southern house spider** (*Kukulcania hibernalis*): The large charcoal-colored females make flat, tangled webs in dark corners and under overhangs and shutters to catch insects.

Exhibition Organization

Spiders Alive! is curated by Norman Platnick, curator emeritus in the Division of Invertebrate Zoology. The exhibition is designed and produced by the American Museum of Natural History's award-winning Exhibition Department under the direction of David Harvey, senior vice president for exhibition.

Spider Shop

A special gift shop at the end of the exhibition will offer visitors a wide array of items and gifts inspired by the exhibition, including spider-themed apparel, unique toys,

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entertaining DVDs and books, distinctive souvenirs, and gifts. Interesting retail products include a remote-controlled tarantula, beautifully framed spider and scorpion specimens, a woven spider web table runner, and a computer mouse featuring a real spider encased in clear acrylic.

Spiders Alive! Online

Visitors can learn about *Spiders Alive!*, watch behind-the-scenes videos, purchase tickets to the exhibition, and more by visiting the *Spiders Alive!* section of the Museum's website, amnh.org.

American Museum of Natural History (amnh.org)

The American Museum of Natural History, founded in 1869, is one of the world's preeminent scientific, educational, and cultural institutions. The Museum encompasses 46 permanent exhibition halls, including the Rose Center for Earth and Space with the Hayden Planetarium, and galleries for temporary exhibitions; state-of-the-art research laboratories and five active research divisions that support more than 200 scientists; one of the largest natural history libraries in the Western Hemisphere; and a permanent collection of more than 32 million specimens and cultural artifacts. Through its Richard Gilder Graduate School, it is the only American museum authorized to grant the Ph.D. degree. In 2012, the Museum will begin offering a pilot Master of Arts in Teaching with a specialization in earth science. Approximately, 5 million visitors from around the world came to the Museum last year, and its exhibitions and Space Shows can be seen in venues on five continents. The Museum's website and collection of apps for mobile devices extend its collections, exhibitions, and educational programs to millions more beyond its walls. Visit amnh.org for more information.

At the American Museum of Natural History

The Museum offers a broad array of programs for adults, children, families, students, educators, and scientists. These range from special exhibitions to lecture series, workshops, and film festivals. Highlights include *Creatures of Light: Nature's Bioluminescence* (March 31, 2012–January 6, 2013), which explores the extraordinary organisms that produce light, from the flickering fireflies found in backyards around the world to the alien-like deep-sea fishes

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and other fantastic creatures that illuminate the perpetually dark depths of the oceans; *Beyond Planet Earth: The Future of Space Exploration* (November 19, 2011–August 12, 2012), which offers a vision of the future of space travel as it boldly explores our next steps in our solar system and beyond; the Space Show *Journey to the Stars*, narrated by Whoopi Goldberg; and a year-round calendar of engaging and educational public programs that feature dynamic encounters with living cultures and authentic science.

Hours

The Museum is open daily, 10 am–5:45 pm. The Museum is closed on Thanksgiving and Christmas.

Admission

Suggested general admission, which supports the Museum’s scientific and educational endeavors and offers access to the Museum’s 46 halls, including the Rose Center for Earth and Space, is \$19 (adults) suggested, \$14.50 (students/seniors) suggested, \$10.50 (children) suggested. All prices are subject to change.

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

- Museum Plus One includes one special exhibition, IMAX film, or Space Show: \$25 (adults), \$19 (students/seniors), \$14.50 (children)
- Museum Supersaver includes all special exhibitions, IMAX film, and Space Show: \$33 (adults), \$25.50 (students/seniors), \$20.50 (children)

Visitors who wish to pay less than the suggested Museum admission and also purchase a ticket to attend a special exhibition, IMAX film, or Space Show may do so onsite at the Museum. To the amount they wish to pay for general admission, they should add \$22 (adults), \$18 (students/seniors), or \$12 (children) for a Space Show, special exhibition, or IMAX film.

Public Information

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

Prepare for your Museum visit by downloading the new **American Museum of Natural History Explorer App**, a groundbreaking enhanced navigation tool available for free from the App Store on iPhone and iPod touch or at www.itunes.com/appstore/. The Explorer pinpoints your location within the Museum and offers turn-by-turn directions and customized tours, a fossil treasure hunt, and social media links for posting to Facebook and Twitter.

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