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Goliath Bird-Eating Spiders: Giant Arachnids



Written by Judy Braus

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Focus Question

What features allow the Goliath bird-eating spider to live in the rainforests of South America?



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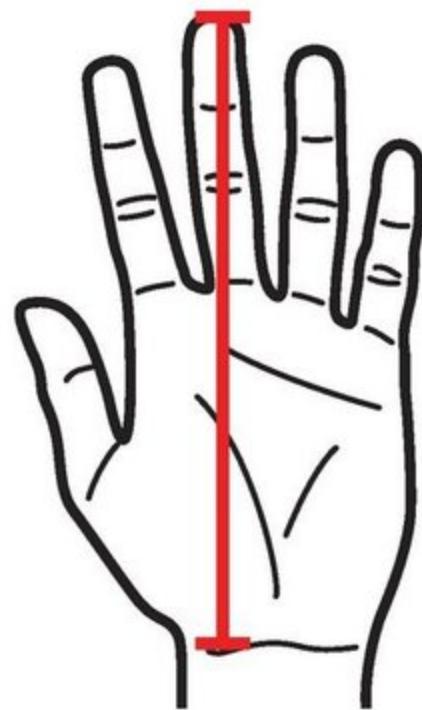
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A Heavy Giant!

If spiders give you the creeps, you'll probably want to stay away from the Goliath bird-eating spider. Named by early explorers who reported seeing a Goliath spider eat a hummingbird, these fierce predators are among the largest spiders in the world. Their fangs, which measure 0.75 inches (2 cm) in length, deliver powerful **venom** that **paralyzes** their prey. Understandably, some people might be a little unnerved by such a giant spider, but Goliath spiders are actually far less dangerous to humans than they are to mice, other small mammals, or insects.

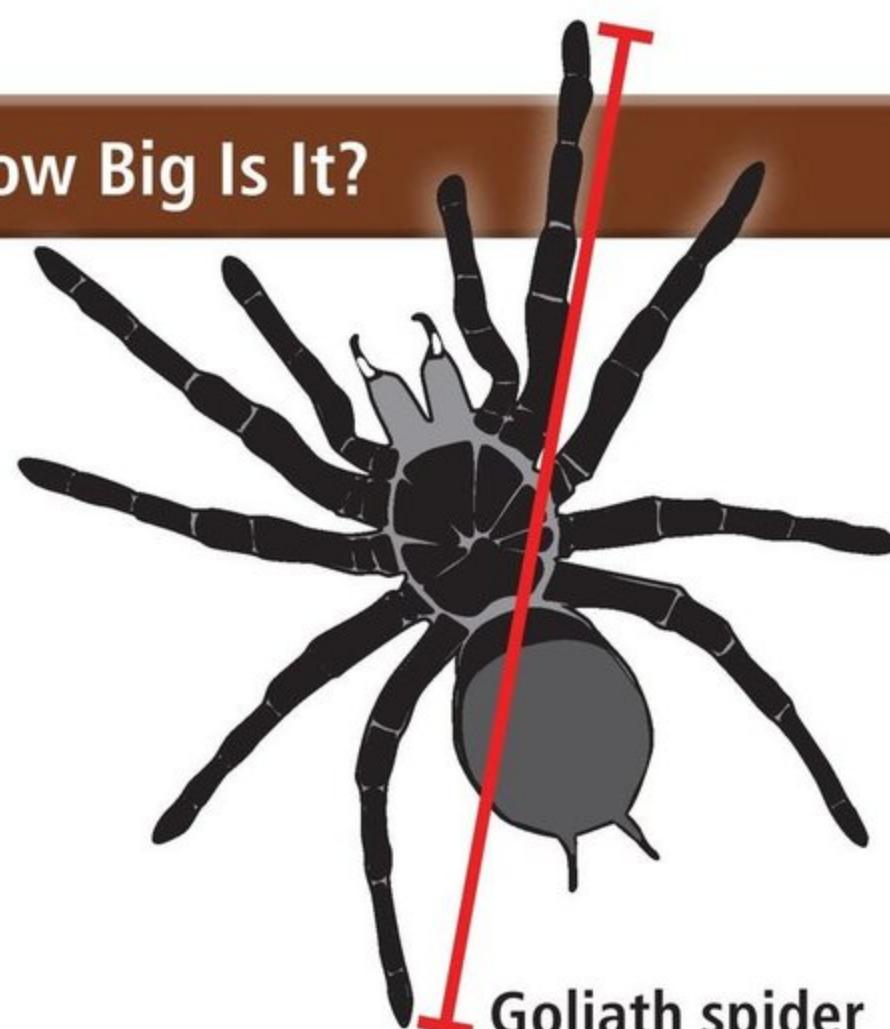
Whether you think they are fascinating or completely horrifying, there's no denying that Goliath bird-eating spiders are huge and unusual **arachnids**.

How Big Is It?



Human hand

length: 7.44 inches (18.89 cm)
width: 3.3 inches (8.4 cm)



Goliath spider

diameter: 12 inches (30.48 cm)
weight: 6 ounces (0.17 kg)

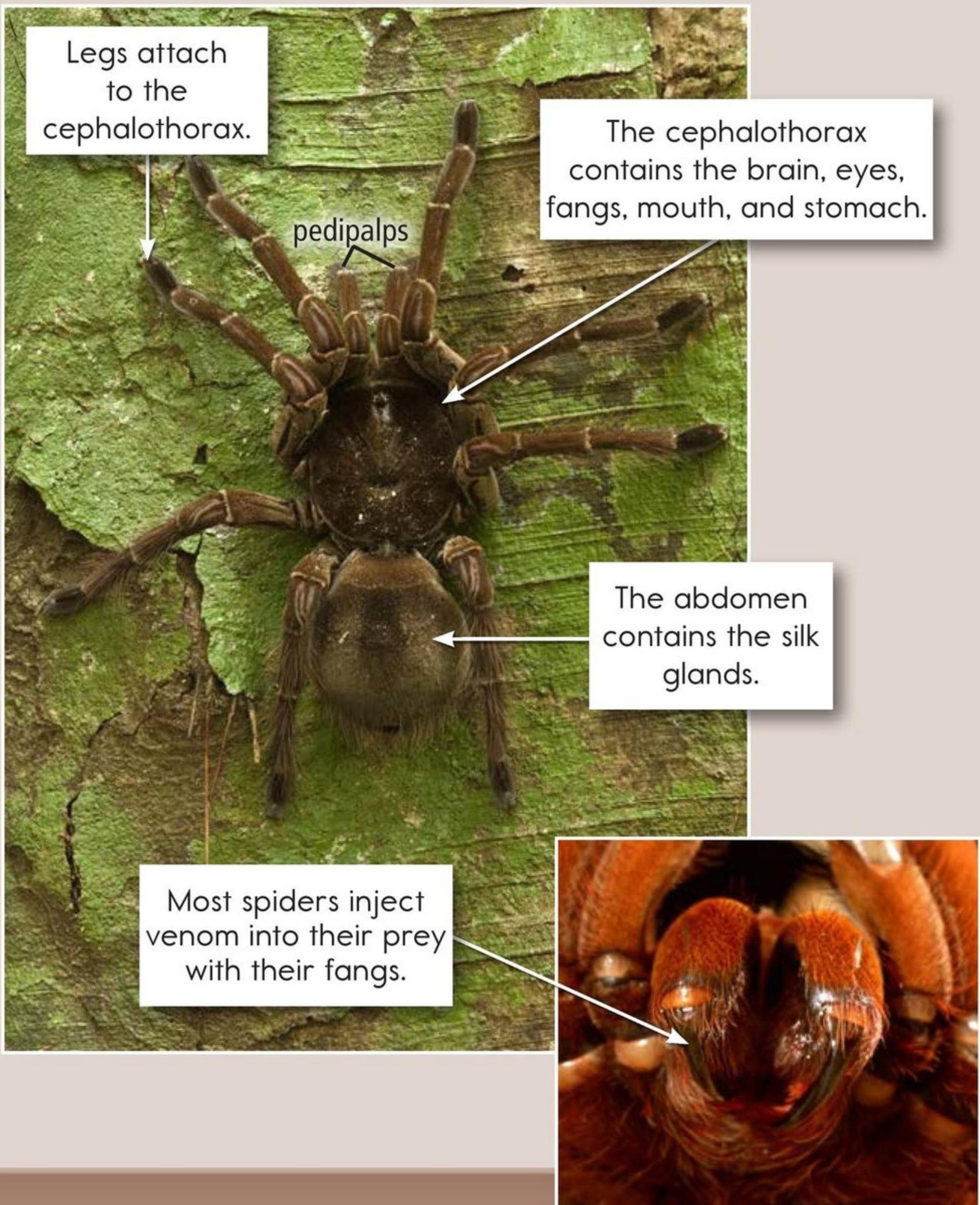


Goliaths sometimes have a golden color in places, which accounts for their scientific name, *blondi*.

The Biggest Tarantula

Tarantulas are an enormous group of spiders—about nine hundred different types of tarantulas have been identified. They live in rainforests, deserts, grasslands, and mountains in the United States, Central America, Africa, Asia, Europe, and Australia. Bird-eating spiders, also known as Goliath bird-eating spiders or Goliath tarantulas, are the largest tarantulas in the world. Like many other arachnids, they have eight eyes, eight legs, and two main body sections. In the front section, the head and neck combine to form the *cephalothorax*, where the mouth, stomach, and brain are located. The legs also connect to this part of the body. The abdomen, or hind section of the spider's body, houses the spider's silk-making glands, called *spinnerets*.

What Makes a Goliath Bird-eating Spider a Spider?



All spiders have

- eight legs
- jaws with fangs (most spiders make venom)
- glands that make silk
- a tough, protective outer skeleton
- eyes (most have eight eyes)
- sensory hairs on their bodies



Hairs are lighter in color at each leg "joint," or knee.

Goliath tarantulas are mainly covered in coffee-colored hairs, with some parts of their body light tan or reddish in color and other parts darker brown. Their long legs are mainly covered with dark brown hairs.

Compared to most other spiders, Goliaths are truly mammoth, weighing more than any other spider on the planet. They can weigh up to 6 ounces (170 g), about the weight of a large apple. When extended, their legs span almost 1 foot (30 cm) in diameter—nearly the size of a dinner plate.

Even though they have eight eyes, Goliath spiders have very poor eyesight. They can sense differences in levels of light but can't really use their vision to zero in on fine details in the world around them. Instead of actually seeing prey, special hairs that cover spiders enable them to sense movement. The slightest **vibrations** on the ground or in the air are picked up by the hairs, which help spiders locate prey.

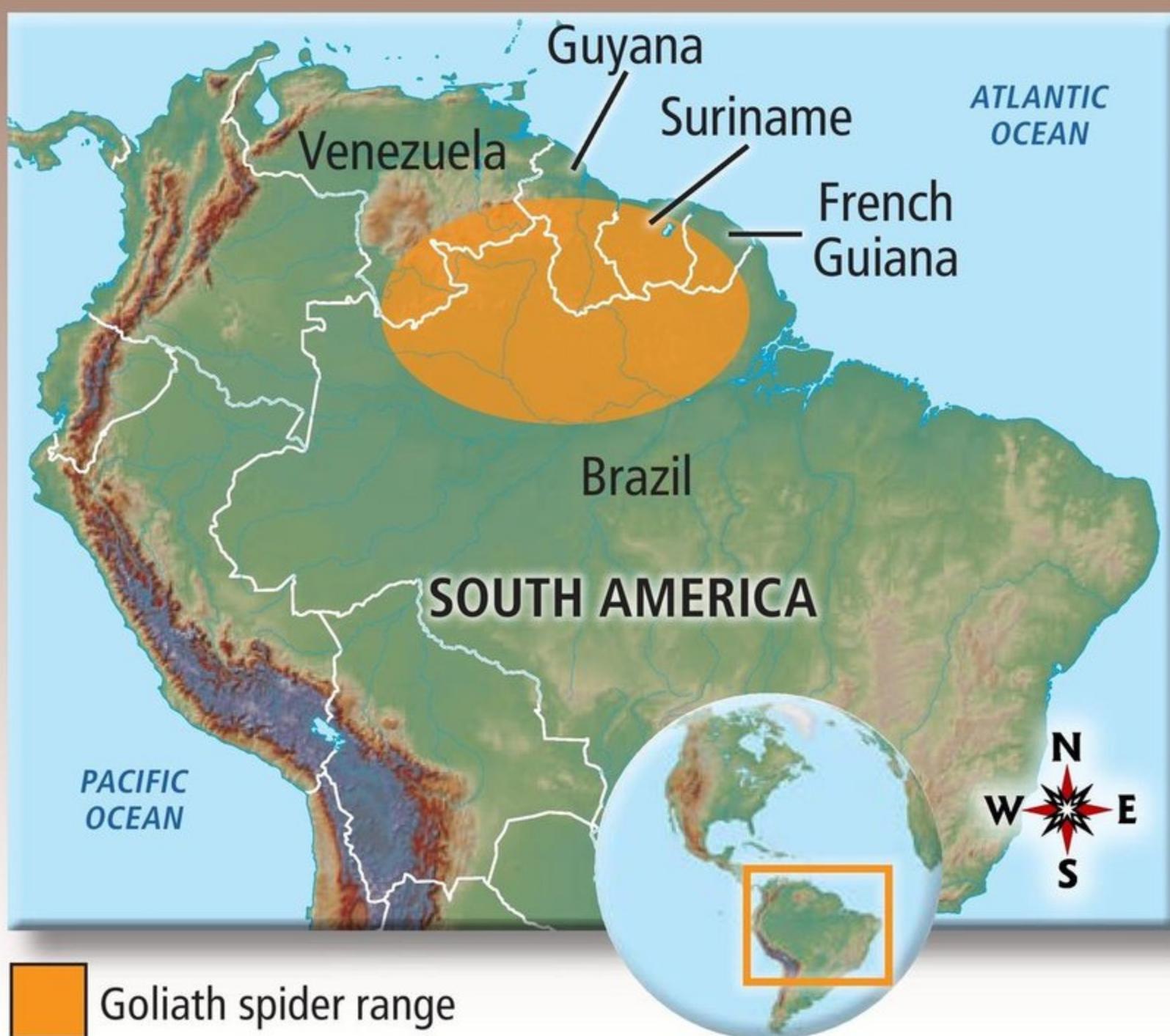
Goliath bird-eating spiders are part of the family of spiders known as *hairy mygalomorphs*. “Hairy” is a fitting description for Goliaths! *Mygalomorph* is a scientific word that describes the orientation of fangs on these spiders. They are a family of spiders that has been around for millions of years. Their more primitive jaws move up and down instead of side to side as most other spider jaws move, which means that the fangs pierce their victims in a downward direction. Mygalomorphs also have sensory appendages near their mouths called *pedipalps*, which help grab prey and pull it toward their mouth and fangs.

wowser!

- Goliath bird-eating spiders have forty-eight “knees.”
Each leg has six joints!
- Some people in South America hunt Goliath spiders.
They either keep them as pets, or eat them.
- If a Goliath bites a human, the result is not deadly, but a bite does cause swelling and pain similar to what you would experience with a sting from a wasp or bee.



Where Do Goliath Bird-Eating Spiders Live?



Life in the Hot, Humid Tropics

Goliath spiders live in hot, steamy, swampy sections in the rainforests of South America. Rainforests cover only about 6 to 7 percent of Earth, but this biome contains more than half of the plant and animal species in the world, including a variety of tropical spiders.

Goliaths are nocturnal creatures, spending daylight hours resting in their **burrows**. When they do venture out at night, they rarely travel beyond a few feet from home. They are solitary spiders, spending their time alone unless they are guarding their young or looking for a mate.

A Powerful Predator

Goliath spiders are skilled predators that attack many kinds of prey, including crickets, frogs, beetles, bats, mice, and other small animals. Although they sometimes eat a small bird, feathered creatures aren't normally on their menu.

Goliath spiders live in underground burrows or in cavities under rocks. Unlike many other spiders, they don't spin webs, but they do spin silk and use it to line their burrow or make a silk mat that they strategically place at the entrance. When a mouse or other small creature crawls by the burrow, the vibrations of the animal's movement on the silk mat are picked up by the spider's sensitive hairs. In no time, the spider zips out of its burrow and makes the kill!

Like all spiders, tarantulas have fangs, and those of extra-large Goliaths are nearly an inch long—about half the length of a human thumb! When a mouse or other small creature gets close, a Goliath bird-eater pounces, grabs the prey with its legs, and uses its fangs to inject the animal with venom. The poison in the venom contains a toxin that attacks the **nervous system** of the prey, paralyzing and killing it. Goliath spiders will often drag their prey to their burrow or some other safe location to eat it.



A Goliath spider attacks its prey.
Goliaths are very aggressive predators.

The Goliath spider mouth is a short straw-shaped opening that can only suck, so all food must be in liquid form. Unable to eat solid food, spiders

spray strong **digestive** juices from openings near their fangs on the tissue of a paralyzed animal they've bitten. These digestive juices dissolve the prey's body tissue. A large tarantula can turn a mouse into a small pile of hair and bones in about thirty-six hours by breaking down the mouse tissue and sucking up the liquid remains.

In addition to attacking with venom-filled fangs, Goliath spiders also defend themselves by rearing up on their hind legs to look more threatening or making a loud hissing sound by rubbing the hairs on their legs together—a behavior known as *stridulation*. They can also shoot a cloud of stiff hairs at their attacker. These hairs have tiny hooks, or *barbs*, that can get into the eyes and throat of the predator, causing tremendous **irritation**. Scientists studying these spiders have often ended up with faces full of tiny hairs, stinging their eyes, skin, and throat.

Hawks, Owls, and Wasps, Oh My!

Although Goliath bird-eating tarantulas are among the largest arachnids in the world, they do have to worry about predators. Hawks, owls, skunks, and snakes sometimes prey on these spiders, but one of their deadliest predators is an insect known as a *spider wasp* or *tarantula hawk*. When a female wasp spies a tarantula, she stings it. The sting paralyzes the spider but doesn't kill it. The wasp then digs a hole, places the paralyzed spider in it, and lays an egg on its abdomen. When the egg hatches, the wasp larva makes a tiny hole in the abdomen and then crawls in and starts feeding on the spider. It saves the organs for last to keep the Goliath alive for as long as possible.



A Goliath spider (left) assumes a defensive posture. A smaller tarantula is being dragged to its own burrow by a spider wasp (right).





A Honduran tarantula finishes its molt by pushing off the old skin. A Goliath tarantula molts in much the same way.

Tarantulas **molt** when they outgrow their harder outer covering, or *exoskeleton*. They literally leave their old skin behind as a new exoskeleton hardens underneath. While they are molting, Goliath spiders are at their weakest and are most **vulnerable** to predators. Adult Goliaths molt once or twice a year, but spiderlings, or young spiders, molt more often since they grow quickly.

Like many other types of spiders, Goliath tarantulas can **regenerate** lost or damaged appendages. This ability can come in handy if a predator grabs one of their legs during an attack. The leg breaks off, and the spider escapes with seven legs. The lost leg can regenerate during the next molt. Depending on when it happens, the “new” leg might be weaker than the others and may make the spider a little clumsier than it was in the past. Spiders can also regenerate claws, sensory organs, and spinnerets.

Spider Life Cycle

Female Goliath spiders have slightly shorter legs than males, but their bodies are larger. Females also live much longer. Some females have survived more than twenty-five years in captivity, but males live fewer than ten. For reasons that scientists are still trying to understand, females often kill males during the mating process.

After mating, a female Goliath lays about fifty eggs in a silk egg sac and stores the sac in her burrow. While waiting for the eggs to hatch, she carries the sac with her when she's out searching for food. She guards the eggs until they hatch in about six to seven weeks. The spiderlings stay under her watchful eye for a few weeks, until after their first molt. Then they're on their own.



Goliath spider young are actually blue and black. They change color as they grow and molt.

What Spiders Teach Us

Goliaths have been around for millions of years—and they haven't changed much in all that time. Their sheer size has always fascinated people, from local folks to scientists to spider enthusiasts. We're continuing to learn about how these spiders regenerate limbs and how Goliath venom affects the nervous system of their prey.

Although the thought of one of these spiders crawling up your arm might terrify you, Goliath spiders, like all living things, play an important role in the ecological landscape where they live. They not only help keep rodents, insects, and other species in check, but they also provide food for a number of predators. Learning about Goliath spiders and other living things in the rainforest helps us understand the relationships between species and the importance of protecting them and their environment.

If you're ever in Goliath bird-eating spider territory, you might want to observe these giants from a distance. They're huge, hairy, and may be scary, but they're definitely one of the most interesting giants in the animal kingdom.



Glossary

arachnids (<i>n.</i>)	members of a group of arthropods that have two body segments and eight legs; includes spiders and scorpions (p. 4)
burrows (<i>n.</i>)	holes dug in the ground by an animal for use as a home (p. 9)
digestive (<i>adj.</i>)	of or relating to the action of breaking down food for use by the body (p. 11)
irritation (<i>n.</i>)	the state of being annoyed, angry, or impatient; the condition of having discomfort in a body part (p. 11)
molt (<i>v.</i>)	to shed an outer covering such as skin, hair, feathers, or a shell before replacing it with a new layer (p. 13)
nervous system (<i>n.</i>)	the body system that gathers information from and responds to the senses, and affects thinking and behavior (p. 10)
paralyzes (<i>v.</i>)	causes one or more parts of a body to become unable to move (p. 4)
regenerate (<i>v.</i>)	to produce or create again (p. 13)
silk (<i>n.</i>)	strong threads made by a spider or silkworm (p. 5)
venom (<i>n.</i>)	a poisonous fluid that some animals use to kill prey and defend themselves, usually delivered by biting or stinging (p. 4)
vibrations (<i>n.</i>)	trembling movements; small, rapid back-and-forth or side-to-side movements (p. 7)
vulnerable (<i>adj.</i>)	able to be hurt easily (p. 13)

Words to Know

arachnids
burrows
digestive
irritation
molt
nervous system

paralyzes
regenerate
silk
venom
vibrations
vulnerable

Front cover: The enormous size of Goliath spiders prevents them from being good vertical climbers like other spiders.

Title page: Goliath prey rarely includes adult birds, but these spiders will occasionally eat a small hatchling.

Page 3: Goliath spider babies look very much like adults—only smaller.

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