

The World of Tarantulas

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Today several names are being used for tarantulas by people in different parts of the world. In Africa they are called 'Baboon spiders', in Australia as 'Barking spiders' and in Asia as 'Earth tigers' or 'Bird spiders'. In most parts of Sri Lanka these theraphosid spiders are referred to as tarantulas. In certain areas of Monaragala and Buththala Districts in the Uva province, they are called the tiger spiders.

If you had the opportunity to bring up a pet dog, a cat or a rabbit how happy would you be? But I do not know how many of you are willing to bring up a tarantula as a pet. However, in many European countries tarantulas have a high value as a pet. Although this is the case in Europe, in Sri Lanka people in areas where tarantulas are found naturally show great fear. They consider stinging by tarantulas is worst than that of a deadly bite of a cobra or viper. Therefore the majority of the people in these areas on encountering a tarantula attempt to kill it immediately. Such incidents raise many questions in our minds. What type of an animal is a tarantula? How does the destruction of tarantulas affect us? Are tarantulas truly poisonous and dangerous animals? Let us find answers to these questions. Tarantulas are spiders that are large and flat with hairy bristles covering their body. Tarantulas belong to the Phylum Arthropoda, Class Arachnida, Order Aranea and Family Theraphosidae. The word 'Tarantula', which as used in English for this specific group of spiders, was first used for the European wolf spider. Even though the wolf spiders are slightly bigger in size, they are in a different group of spiders.

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Tarantulas use their poisonous sting to paralyze the prey. This poison is not deadly to humans, but according to medical opinion its action is similar to a sting of a bee. However, people prone to allergic reactions may show complications. Among the spiders that are deadly to human beings is the well known 'Black Widow' spider in Australia. It does not belong to the Family Theraphosidae, but to the Family Teridiidae and the genus *Latrodectus*.

The 3 parts of the body head, thorax and abdomen characteristically seen in insects are not present in spiders. Their body is formed of two parts, the anterior prosoma and the posterior opisthosoma. Instead of having 3 pairs of legs attached to the thorax as in insects, the prosoma of spiders have 4 pairs of legs. This feature helps to clearly identify spiders from insects. At the anterior end of the body is the tubular mouth. Associated with the mouth are the paired 2-segmented chelicerae, and behind these are the paired 6-segmented pedipalps. Chelicerae of spiders are hardened structures with a pore-like opening in the middle. As a poison gland is associated with the chelicerae it acts as a fang. It is also used for crushing food and to



attack prey or enemies. Pedipalps also handle food and in male tarantulas the terminal segment of the pedipalps is enlarged forming a bulb. This structure is used for the temporary storage of sperms, and during copulation for the transfer of sperms into the female reproductive opening. Situated above the chelicerae are simple eyes that are arranged in 2 rows. According to scientists, in most terrestrial tarantulas, the eyes can detect only light, darkness or movement and not any object. Yet, arboreal spiders have been found to have good vision.

In tarantulas each of the four pairs of legs has 7 segments. The last segment of the leg has 2-3 claws which are retractable, and around the claws is a ring of hairs. The claws and the hairs help to hold on to the surface while walking. At the posterior end of the body are 2 pairs of spinnerets, that secrete silken fibers for web spinning.



Unlike most spiders, tarantulas do not spin a web to catch their prey. Instead they stay in ambush and hunt. After pouncing on the prey, they hold the prey and rotate to the left and to the right and thereafter secrete digestive enzymes onto the prey. As the prey is digested progressively, the contents are sucked into the mouth. Finally the remains of the prey are left behind and the spider moves away.

In most tarantulas, the fine hairs (urticating hairs) on the dorsal abdomen are directed towards the enemy with the help of hind legs. These hairs pierce the skin of the enemy producing pain. If the hairs enter the respiratory tract, the lungs may be damaged, and may cause permanent damage to the eyes.

Tarantulas are nocturnal and shy. They live in tree holes, under bark, under stones and in holes dug in the ground. Through a study conducted in Monaragala and Ratnapura Districts, it was found that tree holes in which tarantulas live are covered with fine silk-like white webs. During day

time the tarantulas stay mostly in their holes and at night they come out in search of food. Often tarantulas that feed on insects have also been observed to feed on frog-lets and geckos. Tarantulas have the ability to remain without feeding for nearly a year consuming only water. However, they are extremely sensitive to chemicals, vibrations and environmental changes.

Studies on the life cycle of tarantulas show that their breeding behaviour is very different to most other animals and consists of special features. The female is usually bigger than the male and is not very colourful. The male is smaller than the female and is brightly coloured. The breeding period of most tarantula species in the northern hemisphere is at the end of summer and in

early spring. In Sri Lanka it is usually during the months of July, August and September. After the last moult the mature male spins a horizontal web above ground among the grasses. This is termed the 'sperm-web'. Thereafter, the male spider rubs the ventral surface of its body against the web and this results in the ejection of sperms from the reproductive opening on to the web. Thereafter, the pedipalps at the anterior end of the body are moved to and fro touching the sperm fluid on the web. Then the sperm fluid enters the bulb-like structure in the pedipalps. The bulb of the pedipalps when filled with sperm fluid becomes swollen, red and shiny.

Now this male tarantula is ready for mating and it leaves the hole and goes in search of a female. Most tarantulas on the move in this state are the males, and they are the ones that are seen by persons involved in their study and research. A male spider in this state moves close to a female and invites her by rhythmically moving the fore legs and the pedipalps. This behavior is termed 'pedipalp drumming'.

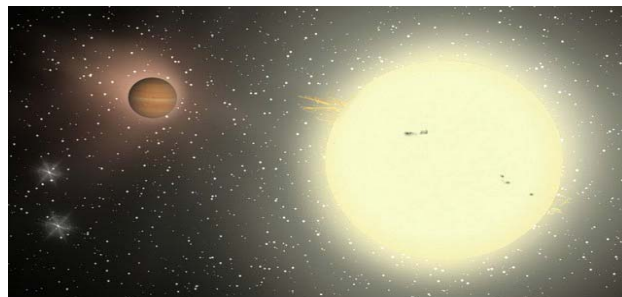
If the female is ready to mate, she too would start drumming using her forelegs and pedipalps. With the help of their drumming and the dance, they come close to each other and the male touches the female with its legs. Thereafter, the female raises its body exposing the ventral surface. This allows the male to introduce sperms from the bulb of its pedipalp into the female reproductive opening. Immediately after sperm transfer the male should leave the female. If not, the female will prey on the male. During our studies we observed a female preying on a male that copulated her. However, in the case of *Chilobrachys* species following several matings the male was observed to leave the female very peacefully.

Usually a tarantula species lays about 50-2000 eggs at a time, and these eggs are deposited in a silk-like egg sack. The egg sack is protected by the female for 6-7 weeks. The young spiders come out when the egg sack bursts, but remain close to the mother for about 2- months. The mother hunts and provides food for the young ones during these 2 months. Thereafter, they become independent and hunt for their own food.

In the world about 860 species of tarantulas belonging to 107 genera have been identified. In neighbouring India, about 40 species of tarantulas in 14 genera have been identified. In Sri Lanka so far only 10 species have been identified. Of them 5 species are endemic to Sri Lanka. However, our recent studies in Rathnapura and Monaragala Districts indicate that these tarantulas which are an important factor in ecosystem balance are under threat. These threats include habitat destruction, land fragmentation, heavy insecticide use and direct killing by man. We should all contribute towards the conservation of these attractive hunters that control the ever increasing insect populations and also maintain ecosystem balance.

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Largest extrasolar planet found!



A new planet was identified by scientists in the Lowell Observatory Planet Search using a network of small automated telescopes in Arizona, California, and the Canary Islands. This planet named TrES-4, is 20 times larger than the earth and mainly consisting of Hydrogen. TrES-4 is about 1400 light years away and orbits its host star in three and half days.

This new planet has 1.7 times larger diameter than that of Jupiter, the Solar System's largest planet, and its temperature is about 1,260°C.

According to the scientists there may be large planets in the space and this planet TrES-4 orbits around one of the stars in the cluster known as "Herculis".

Vitamin B₁ for Diabetics

A research scientist says that deficiency of Vitamin B₁ (thiamine) is one of the major reasons to cause failures in kidneys, retina, and nerves in the arms and legs of diabetics.

This study published in 'Diabetologia' the diabetes journal and was conducted by Prof. Paul Thornalley of the University of Warwick, United Kingdom. The study has shown that diabetics have three-quarter less Vitamin B₁ (thiamine) in their blood than healthy people. According to Prof. Thornalley, this is common to both type one and type two of diabetes, and Vitamin B₁ supplement could be taken by all diabetics and would work alongside conventional glucose control.

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