

THE SNAKES OF SURINAM, PART XX: FAMILY VIPERIDAE,  
SUBFAMILY CROTALIDAE (THE GENUS LACHESIS).

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THE GENUS *LACHESIS* DAUDIN, 1803 - BUSHMASTERS

There is only one species with three subspecies,  
of which one occurs in Surinam.

General data and features of the genus.

Head: Seen from above it is oval-shaped or egg-shaped with a clear separation between head and neck. Only four of the nine well known large headshields found on Colubrid snakes can be seen in *Lachesis*. These are the two supraoculars (small, narrow and somewhat protruding over the eye), and the inconspicuous internasals which lay a number of scale-lengths away from each other.

The eyes are small and have vertically elliptic pupils.

Body: Solid, with strongly keeled scales. Characteristic large diamond-shaped spots, mostly black with a small ground-coloured centre, cover the body.

Tail: Very characteristic for the Bushmasters. The tail scales are keeled; being conical or pyramid-shaped. The end of the tail is provided with a horny knob. If threatened this snake also will vibrate its tail on the ground as a warning. The horny knob plays an important part in the effectiveness of the vibrations, especially when it is performed on a bed of leaves. As a warning signal this sound will never match that of the rattlesnakes.

**Behaviour:** Terrestrial. The hunt for prey-animals takes place mostly during the night, during which the pit (thermoreceptor) plays an important part. The snake lies mostly on the look-out along the game paths.

**Food:** The diet consists of small mammals, chiefly rodents, but also mammals such as opossums, and also birds.

**Habitat:** The savannah forest and the high forest. In the savannah forest particularly, the micro-habitat has to be cool with a high air-humidity. In captivity the snake flourishes the best at a maximum temperature of 24<sup>0</sup>C (and an air-humidity of 90%). In nature the snakes are often found in pairs. They sojourn often in sticky palm groves (Beebe) and when these are not available they just lie under trunks or in hollow trunks, partly under or amongst the fallen leaves.

In other Central or South American countries these animals live in mountainous areas. Here it also prefers the cool (about 20<sup>0</sup>C) places with a high air humidity.

**Breeding:** Contrary to the other genera of the pit-vipers they lay eggs (oviparous). The number of eggs is not large, a maximum of twelve. The length is roughly about 7.5 cm. The female lays her eggs in holes dug out by rodents. It appears that she guards the nest till the eggs hatch after about 78 days.

After copulation the male stays with the female for a long period.

**Specific details:** Linnaeus called this snake *Crotalus mutus* = mute rattlesnake.

- crotalum = rattle

- mutus or muta = mute.

Later the name *Lachesis* was introduced, derived of the greek fate goddess (one of the three fatal Sisters).

The Bushmaster is the largest venomous snake of South America. On the world list however it occupies the fourth place. The King Cobra (*Ophiophagus hannah*) is the largest with 5.5 m; the Taipan (*Oxyuranus scutellatus*) is second with 4.5 m and the Black Mamba (*Dendroaspis polylepis*) is third with about 4 m. Most snakes of this genus are infected with lungworms (*Porocephalus*; Emsley, 1977). According to Beebe you can smell and recognize a Bushmaster at a distance of 10 m by its musky scent. However, even after catching a number of specimens I have not yet observed this scent. The length of the poison fangs in a *Lachesis muta* is 2.5 cm; in a specimen of 3.5 m the length is 3.5 cm. Because the Bushmaster is a large snake, it normally has also a large supply of venom. In comparison with other genera this venom is not so strong, but because of the large amount of it per bite, bites may often prove fatal. Below is a table for comparison of the strength and amount of venom in mutual ratio between the representatives of three genera of pitvipers.

Name	LD 50 per mg venom in mice	average amount per bite	maximum amount per bite	deadly amount for humans
<i>Lachesis muta</i>	1	400 mg	800 mg	350 mg
<i>Bothrops atrox</i>	2	150 mg	350 mg	150 mg
<i>Crotalus durissus</i>	16	33 mg	180 mg	25 mg

The above averages are very rough. The production of the amount of venom depends of course also of the size of the snake.

Lachesis muta muta (Linnaeus, 1766)

Dutch name: Surinaamse bosmeester.

English name: Bushmaster.

Surinam name: Makka sneki or Kapassi sneki.

Maximum length: About 3.75 m.

Scalation: Dorsals in 35-37 rows (keeled scales); 213-230 ventrals; 32-50 subcaudals; single anal scale; 2 preoculars (uppermost very large, lower one narrow); 2 postoculars (uppermost larger); 1 loreal (small); 9 or 10 supralabials (1st and 2nd are large); 13-15 sublabials; no temporals.

(Scalation data from Roze, 1966).

Features: Also see "General data and features of the genus".

The supraoculars, protruding slightly over the eyes, are small and narrow. The pit lies in the subpreocular and is bordered at the bottom by the second supralabial. The inconspicuous internasals are separated from each other by two or three scales. The supralabials are separated from the edge of the eye by four or five scale rows. The head is brown, with small black spots, while from behind of the eye runs a black stripe up to the back corner of the upper jaw (a postocular stripe).

The upper part of the body has a light brown ground-colour and is covered completely on the back with striking black diamond- or saddle-shaped spots with a small ground-coloured centre. These spots run far over the flanks (lateral sides) and often reach the belly-edge. The total number of black spots is about 32. The belly is plain dirty-white or ivory-coloured.

The last part of the tail is black. According to Emsley (1977) the neck of the Bushmaster is very weak. My experience in seizing them behind the head is, that the snakes made no effort to

free the head again. I must say that this made the photographing of the head region very simple. Maybe this has indeed something to do with these snakes having a weak neck, but this is mere conjecture.

Remarks: The makka sneki (Surinam for thorn snake, because of its thorny tail-end) often lies on the look-out along game paths in order to catch prey. In connection with this, the Surinamese have the following folklore:

"When a group of people (forest workers, hunters, villagers, etc.) walk behind each other along a forest- or game path, the makka that lies there will "always" attack the third person that passes". An explanation for this can be, that the makka withdraws itself in the first instance, but after that, because of the continuous disturbance, it attacks as a fear induced reflex, or is driven by some defence instinct. In practice this could affect the second or the fourth person, not just the third. The folk-tale wants to make these things a little more dramatic, so refers always to the third in line.

Another tradition tells that the makka "always" lives together in a hole with a giant-armadillo. Here also it must be said that holes of kapassies (armadillos) offer good hiding places for many species of animals and thus also for a makka. It can happen that a makka goes into a hole where the original inhabitant is still present and where the old and new inhabitants accept each other in one way or another. When this is observed once, then this is a basis for a savoury tradition. The name "kapassie sneki" as a second name has been derived from this. The native population (mainly forest-land Creoles and Indians) will never kill this very feared snake by chopping off its head with a chopper, but will use a stick or

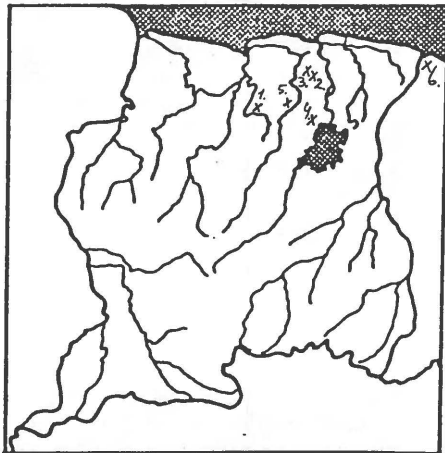
branch to crush its head. The tradition says, that a chopped-off head seeks revenge and will still bite. (This assertion contains a fundamental truth! From my own experience I can state that a chopped-off head from a snake can still make conscious bite-movements after a half-hour.) As a kind of exorcism they will immediately, after the crushing of the head, sever the head from the body and bury it together with the chopped-off tail-end (this is also seen as a part of the venom apparatus), separately from the rest of the body.

Another Surinamese popular belief is the effect of "sneki koti". This is a medicine against snake bites, or even stronger, the medicine is believed to be able to put snakes to flight or even make them drop dead.

Sneki koti is made from the head of a snake, that is roasted to char. The preparer believes the victim to be a venomous snake. The charred head is rubbed into a black powder, together with charred herbs, lime and gun-powder. This resulting powder has to be put in little scratches in the skin at the wrist and ankles once every half year. Should you get bitten despite these precautions, you have to swallow a little powder. After this you may not eat turtle- or deer meat again. You also may not get close to a pregnant woman, because the power of this "medicine" is able to kill the unborn child. Seeing that the forest-dwellers, in spite of their great knowledge of nature, still do not know a large number of non-venomous snakes and see these snakes as venomous, the belief in sneki koti will unfortunately continue. Regularly they believe that the "medicine" has been effective, because of course it always "cures" the bite of a non-venomous snake that is believed by the natives to be venomous.

Distribution: Brazil, Venezuela, Trinidad, Bolivia, Peru, Ecuador, Colombia and the Guyanas.

Locality records in Surinam: 1. Military bushcamp bosbivak Tibiti, killed by unknown (1971); 2. Swimming pool Cola-creek behind the village Zanderij (J. de Bruyn, 1973); 3. Village Browns-weg, beaten to death (1974); 4. Loksi Hati military bushcamp, beheaded (1974); 5. On the road between St Laurent and Mana (A. Abuys, 1975).



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Foto 1. *Lachesis muta muta*. Foto: C.A.P. van Riel.

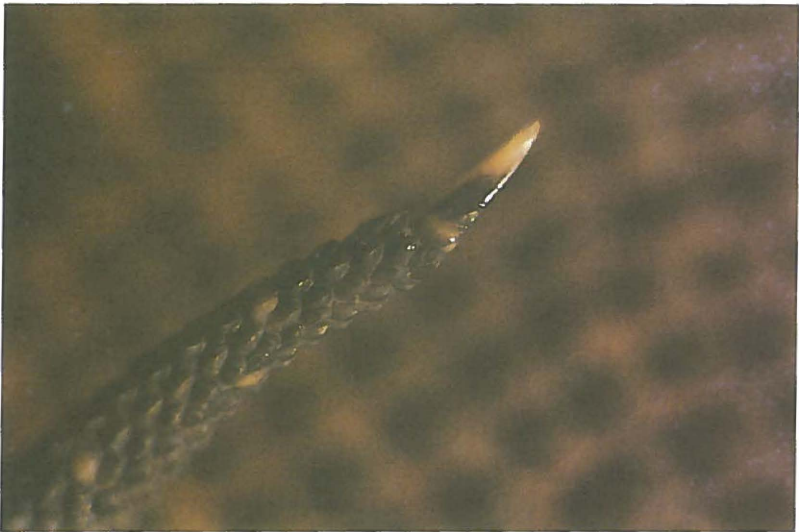


Foto 2. *Lachesis muta muta*, staart/tail. Foto: A. Abuys.



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Translation: Fons Sleijpen.