THE SNAKES OF SURINAM, PART VII: SUBFAMILY *XENODONTINAE* (GENERA *CLELIA* AND *DIPSAS*).

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THE GENUS *CLELIA* FITZINGER, 1826

This genus includes at least 6 species, one of which *Clelia clelia* has 4 subspecies. In Surinam only the subspecies *Clelia clelia clelia* occurs.

General data and features of the genus.
Head: The head is rather streamlined and merges gradually into the body.
Body: The body is slender and cylinder-shaped with shiny smooth scales.
Behaviour: This species is diurnal, it is mainly a terrestrial snake, but is often found in bushes and the lower parts of trees.
Habitat: It lives mainly in the savannah forests as well as forests at higher altitude. It also occurs in cultivated areas with bushes.
Food: It mainly hunts lizards and snakes, especially venomous snakes (*Bothrops* and *Lachesis*), but also takes small mammals.
Reproduction: Oviparous, approximately 16 eggs are laid.

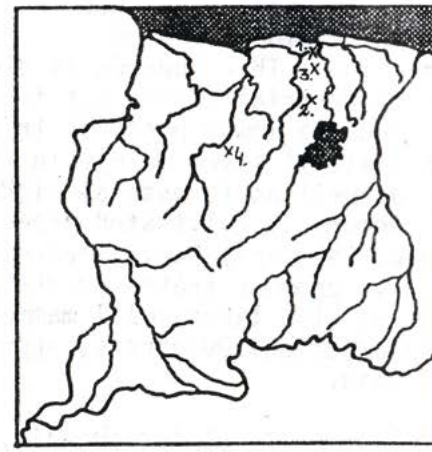
Clelia clelia clelia (Daudin, 1803)

Dutch name: Mussurana
English name: Black cribo, Black tree snake, Mussurana.
Surinam name: Todoman sneki.
Maximum length: 3 meters.
Scalation: Dorsals in 19-19-17 rows (two apical

pits); 205-240 ventrals; 60 to 83 subcaudals; a single anal scale; 1 preocular; 2 postoculars; 1 loreal; 7 supralabials (the third and fourth are touching the eye); 8 sublabials; 2+3 temporals.

Colouration: See also the general data on the genus. The dorsal colouration is brownish-black to grey-black with a bluish hue. The belly is glossy whitish and the lower part of the tail is grey and is sometimes spotted. Young animals are red-brown with a black head. Babies even have a white band or spot on the neck. Because of the colouration they are sometimes confused with *Pseudoboa coronata*. The mussurana is an opisthoglyph (with enlarged grooved teeth in the back of the upper jaw, which are directly connected to venom glands).

Distribution: From Belize and Guatemala to Ecuador and west of the Andes. Also the mainland of South America, east of the Andes plus the northern parts of Argentina and Uruguay.



Locality records in Surinam: 1. Surroundings of Paramaribo (Celos area and the Culture Garden); 2. Bush Camp in Zanderij; 3. Lelydorp; 4. near the Raleigh-falls (approx. 4 km before the Voltz mountain along the path).

Specific details: This snake is certainly not aggressive. More than once I caught and held one without it biting me. Other members of our 'Herpetological Holliday expedition' can con-

firm this. One of them, Ton van Boven, saw a snake crawling around under some branches and plants by a fallen tree. It was about half past ten in the morning, we were on the right hand side of the path approx. 4 km from the Voltz mountain. The animal was probably looking for prey and was so preoccupied with this that we were able to call the others to show them our discovery. We were able to see the snake because it was hunting in an open spot where the sun shined. The snake took no notice of its spectators and was taken quite easily by one of the crew: Ton van Boven. He grabbed the animal quite easily without being bitten. Even when he placed the snake around his neck and held it so that we were able to measure it, it didn't make any fuss. When we let the animal free it moved away quite rapidly. Along with the non-aggressive character of the animal, the method of catching and holding aid a non-aggressive response.

That the mussurana is a real snake-hunter is proved by the following story: Once, without giving the matter second thought, I put a *Pseustes poecilonotus polylepis* in a sack together with a newly caught mussurana. Both animals were of equal length (approx. 1.10 m), the *Pseustes* was a bit more slender. When I wanted to photograph the snakes after a few hours only the mussurana appeared with the *Pseustes* in its stomach. The mussurana is an opisthoglyph snake which may also kill its prey by constriction, a habit that an opisthoglyph does not usually have. The method of constriction is remarkable and specialized because the prey consists of snakes. During the day the mussurana searches out sleeping snakes, grabs them behind the head and winds its entire body like a spiral around the prey species. During constriction the mussurana bites several times

injecting venom from its rear fangs into the prey. The spring-like constriction position (the boas and pythons use only a few coils) is also used by the snake when small mammals are taken. Later, however, the unnecessary coils are loosened, once the snake has its prey in a secure grip. The snake may also inject venom near the end of constriction when the prey is only just dead, biting several times in different spots. This instinctive biting of prey which has already been killed by constriction is probably a function of digestion rather than a way of killing or paralizing prey. The injected venom aids the beginning of digestion before the digestive fluids of the stomach come into operation.
It is an interesting terrarium animal and is easy to keep. I myself kept a mussurana in a terrarium for almost 7 years; about two years in Surinam itself (from 1973-1975) and after that for five years in Holland (1976-1980).

THE GENUS *DIPSAS* LAURENTI, 1768

This genus includes 31 species. In Surinam the following occur: *Dipsas catesbyi*, *Dipsas copei*, *Dipsas indica indica*, *Dipsas pavonina*, and *Dipsas variegata variegata*.

General data and features of the genus.
Head: The head is blunt, a bit rounded with a short snout. The head is clearly separated from the neck. It has large eyes with a vertical pupil. The lower jaw is strengthened by a partial growing together of the chin scales and the absence of a chin groove. This adaptation is related to specialized diet (see also Food). A further diet-related feature is the enlargement of the front teeth of the lower jaw.
Body: The body is long and slender, flattened



Fig. 1. *Clelia clelia clelia*, juv.
Foto: J. Moonen.



Fig. 2. *Dipsas catesbyi*. Foto: A. Abuys.

laterally, while the vertebral scales (middle row dorsal scales) are larger than the rest; the scales are smooth. The surinam species have 13 or 15 rows of dorsals and a single anal scale.

Tail: Long and not flattened.

Behaviour: It is a nocturnal and arboreal snake, it mainly hunts in the bushes of forests. It is sometimes to be seen by daylight in the dark forest while hunting. They are slow moving snakes.

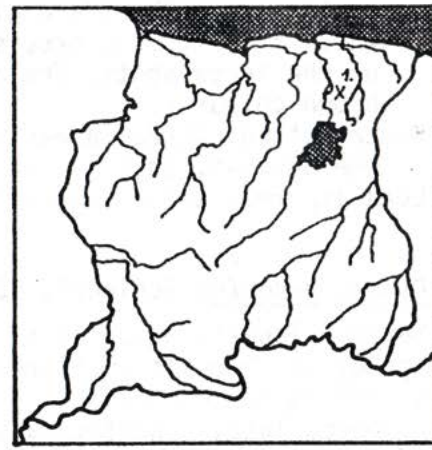
Habitat: It is a real 'forest snake' which sometimes occurs at the forest edge. To be seen in forks of tree branches or in big bromelias.

Food: The food consists mainly of snails and slugs and also soft white grubs and other molluscs; even ants are swallowed.
Snails are eaten in a special way. With the adaptations mentioned above, the snake can get, with some difficulties, the snail's body out of the shell. To manage this it has to grip the snail, throw a coil around a branch or other fixed object for anchorage and inserts its strengthened lower jaw as far as possible into the opening of the snail-shell. The snake sinks its enlarged front lower jaw teeth deeply into the snail's body. With a twisting movement of its head the snake pulls the snail's body out of the shell. During this procedure the snake will not be able to breath. The enlarged lungs help with this problem. Troublesome slime is disposed of as soon as possible by wiping the head on an obstacle and, if water is around, by drinking a lot.

Breeding: The snake is oviparous, two to six eggs are laid.

Dipsas catesbyi (Sentzen, 1796).

English name: Catesby's snake, Brown-saddled snake.
Maximum length: About 70 cm.
Scalation: Dorsals in 13 rows; 172-194 ventrals; 89-114 subcaudals; a single anal scale, 2 preoculars; 1 postocular; 1 loreal; 8 (sometimes 9) supralabials (the fourth and fifth touch the eye); 10 sublabials; 1+2 temporals.
Colouration: Around the snout is an irregular small white band and behind the eye an oblong white spot. The dark brown or black spots on the back are smaller than those on the sides. The dark spots have a white lining. The basic colour is light brown and makes small bands on the sides which grow into a sort of square pattern on the back. The belly is whitish or cream coloured interrupted on both sides by offshoots of the spots which make a regular black-white pattern. Near the tail the dark spots are under the offshoots and form dark or black bands.
Distribution: The whole Amazone area east of the Andes with as northern range the coast of Venezuela and as southern range North-Bolivia and the southern half of Brasil.
Locality records in Surinam: 1. Joden Savannah.
Specific details: The author has less experience with this snake, the only specimen he found was caught near the Joden Savannah.



Dipsas copei (Günther, 1872).

Scalation: Dorsals in 15 rows.
Colouration: Less information is known of this snake. It is certain that it is a member of the *Catesbyi* group and that its markings are similar to those of *Dipsas catesbyi*, but it has 15 rows of dorsals instead of 13.
Distribution: The south of Venezuela and the Guianas.
Locality records in Surinam: None.

Dipsas indica indica Laurenti, 1768.

Maximum length: Approximately 105 cm.
Scalation: Dorsals in 13 rows; 180 to 204 ventrals; 102 to 106 subcaudals; a single anal scale; 1 or 2 preoculars; 2 postoculars; 1 loreal; 9 supralabials (the fifth and sixth scale touch the eye); 14 or 15 or 16 sublabials; 1+3 or 2+3 temporals.
Colouration: The back part of the head can be marbled with black and white of yellow. The basic colour is grey-brown with large black saddle-shaped spots. The spots are largest on the venter where there are also small yellow spots, which are situated precisely between the angles of the large spots. The belly is chocolate-brown coloured.
Distribution: Stream areas of the Amazon, Colombia, the Guianas, Ecuador and Peru.
Locality records in Surinam: None.

Dipsas pavonina Schlegel, 1837.

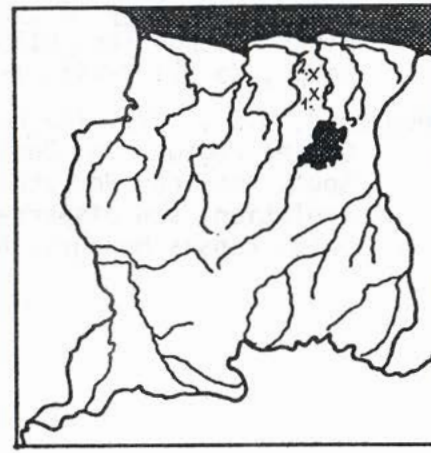
Maximum length: About 75 cm.
Scalation: Dorsals in 13 rows; 205 to 219 ventrals; 125 to 130 subcaudals; a single anal scale; 2 preoculars; 2 postoculars; no loreal; 10, some-

times 11 supralabials; 1+2 (sometimes 2+2 or 1+1) temporals.

Colouration: On the head are some scattered white spots. There are large round black spots at the back. The basic colour is light brown, and the belly is whitish or grey white.

Distribution: The northern half of South-America east of the Andes.

Locality records in Surinam: 1. Surroundings of Zanderij; 2. One specimen was caught bt T. Henzen near his house at the Palisadeweg in Lelydorp.



Dipsas variegata variegata (Duméril, Bibron and Duméril, 1854).

English name: Many banded snake.

Maximum length: About 70 cm.

Scalation: Dorsals in 15 rows; 179 to 196 ventrals; 82 to 99 subcaudals; a single anal scale; 1 preocular, sometimes none; 2 postoculars; 1 small loreal; 8 or 9 supralabials; 2+2, 2+3 or 1+2 temporals.

Colouration: the spots do not cross the vertebrals; the colour is brown or dark brown with a vague thin yellow edge as limitation. The basic colour is light brown (sand-coloured). There is a small dark spot between the large lateral spots. The belly is yellow-white with scattered grey-brown spots.

Distribution: Venezuela, The Guianas, Ecuador, and Peru.

Locality records in Surinam: None.

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