

A SUCCESSFUL BREEDING ATTEMPT WITH *NAJA MOSSAMBICA*

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INTRODUCTION

The Mozambican spitting cobra (*Naja mossambica*) is closely related to *Naja nigricollis* and was previously considered as a subspecies of it. *Naja mossambica* has two subspecies, which are described by Trutnau (1980), among others.

This article concerns *Naja mossambica* which were imported from the wild. We unfortunately could not obtain information about the distribution area where they were caught.

IDENTIFICATION TABLE

Naja mossambica is a snake of stout build. The head is short and egg-shaped, hardly distinct from the neck. It has big eyes with round pupils. The dorsal surface of *Naja mossambica* varies from yellow to orange and sometimes even brick-red. Some irregular black bands are found on the throat. Its length is 120 cm on average, seldom 150 cm or more. The upper part of the body is encircled by 21-27 smooth scales in diagonal rows.

Ventrals: 180-196 in males, 188-207 in females; subcaudals divided: 53-69 in males, 55-68 in females. *Naja mossambica* has 6, sometimes 7 to 8 supralabials.

ORIGIN AND NATURAL BEHAVIOUR

The Mozambican spitting cobra is found in the southern part of Tanzania, in Malawi, the south of Zambia, Botswana, Zimbabwe, Transvaal, Swasiland and Natal. It prefers lowlands and does not often occur above 1500 m in mountains. Within its distribution area it is very common and in South Matabeleland it is the most common snake and can be found in large numbers. It likes to be in the vicinity of water and when disturbed it often flees into the water. One also finds this cobra in areas with granite rocks, where it lives in the many holes and cracks. Furthermore, it likes to hide in deserted termite mounds, hollow trees or underneath fallen tree trunks. *Naja mossambica* has a wide prey range which obviously explains the large distribution area and the frequent occurrence of this cobra species. It seems it has a preference for toads; lizards, small snakes as well as rodents form part of its diet. In times of scarcity it even eats insects and snails and it is known to enter chicken

coops to get to the chicks as well as eggs. This makes these animals a successful species in their distribution area. They are able to adapt to the varying circumstances which threaten more and more species of animals in Africa, and their consequences (ecological disasters, war, etc.).

The Mozambican spitting cobra is mostly active during dusk and night, but can be found basking during the daytime. When disturbed it raises itself and spreads its ribs to form a small hood and spits towards its adversary, aiming for the eyes, while it has its mouth slightly open. It has a range of 2 to 3 m and large specimens reach up to 4 m. The toxin which is produced in large quantities contains mainly neurotoxin which acts on the nervous system, but it also contains some components that destroy body tissues, which can lead to severe necrosis. Because of these elements in the venom of *Naja mossambica* it could be very well possible (according to Trutnau), that some fatalities caused by venomous snake bites, which were ascribed to *Bitis arietans*, might have been from *Naja mossambica*. After the venomous glands are emptied they are quickly filled again so they can spit repeatedly. If the venom comes into contact with the eyes they have to be washed thoroughly with a solution that does not harm the eyes to prevent swelling, infection or even blindness. The main difference between spitting cobras and non-spitting cobras is that a spitting cobra aims its head immediately towards the face of the adversary when threatened or disturbed, whereas a non-spitting cobra most often aims for the legs of its adversary. When there is no way to flee or in situations of great stress *Naja mossambica* can become rigid; it is then in a so-called state of suspended animation, but stays alert to avert any threat or danger. You have to be very careful when approaching the snake if it is in that state, because of its constant watchfulness it can strike immediately. This kind of behaviour is also known from *Haemachatus haemachatus*.

OUR ANIMALS IN THE TERRARIUM

In early 1994 we were able to obtain a male *Naja mossambica* which had already been kept for a year by a snake keeper. The animal came originally from a dealer who had imported it from the wild. It was a big snake of about 1.35 m, with a diameter of about 4 to 5 cm and it was an avid eater of rodents and chicks. The age of this male is unknown. It was an inquisitive animal which was very used to being in captivity. We keep it in a terrarium of 100x60x50 cm (lxwxh), which was provided with the sliding system described earlier in *Litteratura Serpenti* (Mavromichalis, 1994). The whole terrarium was provided with floor heating and a spotlight of 25 Watt. Daylight temperature was between 27-34°C and during the night it dropped to about 20-25°C. Photoperiod varied from 12 to 16 hours. On one side of the terrarium was a hiding box, on the other side a water bowl. This cobra species likes a warm and dry climate, the relative humidity varied from 50-70%. The care of the male was without problems and the periods between sloughing varied from 4 to 6 weeks. We bought the female in April 1994 from another snake keeper, who had bought this animal as a baby on the Snake Day in 1992. This animal was much more restless and more aggressive than the male and it has always remained very shy. At the slightest disturbance it spits repeatedly. The length of this animal was about 1.10 m with a diameter of about 3 cm. She too was an avid eater and both animals were offered mice, young rats or chicks every 7 to 10 days.

MATING AND GESTATION

On 11 April we decided to put the pair together and we placed the female with the male in the terrarium. On the introduction of the female the male got very excited and started to crawl (violently shaking) over the female which initially fled every time. From the end of April until the beginning of July several successful matings occurred, which did not last more than one hour. We put a breeding box with moist sawdust in the terrarium which was inspected immediately and was used frequently during sloughing periods. We could not see anything indicating a successful fertilization or eggs from the female that year. The pair were doing fine and by the end of October 1994 we put them in winter rest, which only required putting out the light. The temperature during that period was dependent on the room temperature of the room where the animals were kept and that was between 16-21°C. By the end of February the light was turned on again and from March to June the female showed a extremely voracious appetite, the periods between sloughing was now about 4 weeks. From the middle of June the eggs were clearly visible with the female and she went into a sloughing period again. On 24 June she sloughed and 23 days later there were 7 very large, snow-white eggs, which were 8.5 cm long and had a diameter of 2.5 cm when they were laid. We had not expected such large eggs, because we also had a clutch of *Naja sputatrix atra*, but these eggs were half the length of the eggs of the female *Naja mossambica*, although both females are about the same length and diameter. We did not observe any matings this year after the winter rest, as described above. It could be that the eggs of this year are the result of mating attempts from last year, but we cannot rule out that matings occurred after the winter rest, if not, it is a question of sperm retention. Also, we have not come across the number of 7 large oblong eggs in the literature we had at our disposal. We did find a breeding report of P. Hartmann and B. Steiner (1985) with *Naja mossambica* which had a higher number of eggs, that were unfortunately not fertilized. They had previously experienced the same thing with their animals. Maybe the number of eggs is related to the age of the female, their female was older than 5 years, whereas our female is 3 years old.

INCUBATION TIME OF THE EGGS/THE YOUNG

We put the eggs - which were lying in a cluster - just as they were in a small box with vermiculite as a substrate in an incubator of the 'au bain Marie' type. The temperature was between 27 and 29°C, the relative humidity between 80 and 100%. The eggs were doing fine under these circumstances, and after 55 days on the evening of 11 August the first eggs started to show slits. The next morning they were all slit and from one egg protruded two small heads. That one seemed to contain twins. On 13 August after much mouth gaping the first young left their eggs. They all displayed the same behaviour of frequent gaping before leaving the egg. On 14 August all the young had hatched. The average length varied from about 29 cm to 31 cm, with the exception of the twins that were about 25 cm long and together weighed as much as a single young animal. The sex ratio was ideal, four males and four females, which we determined by so-called 'sexing'.

We gave the young a number from a1 to a8

	Sex	Weight
A1	male	15.0g
A2	male	13.8g
A3	male	15.5g
A4	male	15.7g
A5	female	13.0g
A6	female	13.1g
A7	female	07.5g
A8	female	08.5g

From 19 August the first one started to slough. On 22 August all young had sloughed and we decided to house them separately. We also offered all the young a hairy nest mouse in the afternoon and when we checked in the evening they had all eaten. With regards to their colouring and pattern they were identical to their parents. They all had a very orange belly and if they spread their so-called 'hood' they have clearly defined black bands on their throats and they raise themselves spitting repeatedly at the direction of the one who disturbs them. This is the first time that we bred an F1 generation successfully from wild-caught cobras. The method of incubating "au bain Marie" proved very successful. In one year we got 31 young from 31 eggs which results in a hatching percentage of 100%.

LAST BUT NOT LEAST

Naja mossambica is a very strong and tough cobra species which adapts itself well to terrarium conditions. The food for these animals does not pose a problem either. Because they have specialized in spitting venom our slide-cage system has proved its worth. Wearing the right protection for the eyes is a must. We also heard from a good acquaintance who maintains this cobra species that the venom also acts as an irritant on the mucous membrane of the nose and mouth. It would be best to have a protective mask covering the whole face (available in most tool shops). It is perilous to lose your eyesight while your doing your job, all control over the situation would be lost immediately. This makes all previously mentioned safety measures necessary, but they do not outweigh the keeping of this beautiful and interesting cobra species, which has lived without problems in captivity with some snake keepers for over 20 years.

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