

BITIS GABONICA RHINOCEROS,

The Gaboon Viper



H. Slegers

*Muntslagerserf 1, 6043 SM Roermond,
The Netherlands.*

■ INTRODUCTION

The Gaboon Viper has a large distribution area in Central and East Africa to East Zimbabwe, in Zululand in South Africa it is represented by *Bitis gabonica gabonica*. To the west it is represented by *Bitis gabonica rhinoceros* which distinguishes itself from the nominate form by the larger horns on the nose, which are often completely missing in the nominate form. *Bitis gabonica rhinoceros* also has a single triangular spot which runs from the eye to the corner of the mouth, whereas in *Bitis gabonica gabonica* the spot runs from the eye downwards (see Rosi, 1988).

This snake occurs in woody areas and adjacent grasslands with low bushes. It is the biggest African Viper species, and of all venomous snakes it is the bulkiest and has the longest fangs. Its prey consists of a large variety of rodents, birds and even small monkeys and other mammals of the correct size. They also feed on other reptiles and snakes, but this rarely occurs because the movement of the prey triggers a reflex to strike after which the prey is automatically eaten. The average length is about 130 cm, but they can reach over

180 cm. The head is clearly distinct from the neck and is very broad. On the nose there are two small horns, however, these may be absent. As with other Puff Adders the tail is rather short with a clear difference between both sexes (in males it is 50% longer in comparison with females). Because it is rather difficult to describe this snake's coloration and pattern I prefer to do so by means of the accompanying photographs. However conspicuous this snake may be on a uniform background, in my terrarium on a thick layer of dead leaves and mulch they are very hard to distinguish. Because of its stout build it is not able to hunt actively, and therefore its hunting technique exists of waiting for prey animals that are caught as soon as they come in the vicinity of the head. For such a bulky snake a bite happens with inconceivable speed and power, whereby the snake puts its teeth into the prey several times without letting it go. A small prey item is held until it is dead, but large, able-bodied prey is usually released after the bite and trailed and devoured afterwards.

■ VENOM

As the name suggests the Gaboon Viper belongs to the family of Vipers. This family distinguishes itself from other venomous snakes by the construction of the upper jaw where the fangs are situated. The Gaboon

Viper is a solenoglyphous snake, meaning that the fangs are positioned in the front of the upper jaw and are folded against the upper jaw when at rest. When it bites the snake opens its mouth after which the teeth are brought forwards. This enables the fangs to be longer than in other non-solenoglyphous venomous snakes. This is advantageous because during a bite the poison can be injected much deeper into the wound. The teeth of an adult Gaboon Viper can grow up to 45 mm long, in contrast to the 5 to 6 mm length of the teeth of a Cobra of comparable size. The venom is mainly cytotoxic and is produced in large quantities (450 to 600 mg), enough to kill six adult humans. In spite of its sometimes "stressful behaviour" when disturbed, a Gaboon Viper cannot easily be persuaded to bite. In this lurks danger, because the snake - even when it is not aggressive - can mistake the hand of the keeper for prey, after which a bite can quickly happen with all its consequences.

When disturbed the smaller Gaboon Viper species, as well as *Bitis arietans* take up a certain position whereby they pull their head towards the body in an S-shape which is typical for vipers. The Gaboon Viper prefers to stay as it is and when disturbed it will only make a loud hissing noise and usually some slight sideways shaking movements with its head. It does not necessarily have to lie in an S-shape to be able to strike, particularly because a bite usually happens sideways. The seriousness of a bite depends on a lot of factors; when bitten by a snake that is only mildly poisonous it is advisable to wait for

the first symptoms of poisoning before starting treatment with a serum. However, this is not advisable in the case of e.g. mambas and cobras and the like. It sometimes happens that venomous snakes bite without actually injecting any venom (this has happened to me with a 60 cm long *Agkistrodon piscivorus*). In the case of a bite from a Gaboon Viper the effects do not take long to manifest themselves. Immediately after

Gaboon Viper, detail of head.



Photo: H. Siegers

the bite one feels a sharp pain at the site of the bite that expands rapidly. A bite from this snake is very painful indeed because of the components that destroy tissue and blood. Apart from the destruction of the red blood cells, bites cause large swellings and oedema and an enormous loss of blood and body fluids which often causes the victim to go into a state of shock. An important part of the treatment in Gaboon Viper bites is to circumvent loss of body fluids by administering lots of fluid intravenously. In a later phase

necrosis often develops, which may be responsible for the development of large scars or even the need for amputation. Even when large quantities of serum are used for treatment the bite of this snake remains very dangerous. Statistically there are only a few reports of hospitalization in Africa in which a Gaboon Viper was involved. This is partly because the snake occurs in places where few people live and because of the fact that it gives prior warning and is not very aggressive. Also that in the case of a bite by an "angry" Gaboon Viper, so much relatively highly potent venom is injected that the victim dies shortly afterwards and hospitalization is superfluous. Many bites also occur in areas where there is hardly any medical care available. The health and age of the victim, as well as the place where he or she was bitten plays an important role. The size of the snake and the penetration of the bite are very important because a large snake injects the venom more deeply than a small snake.

Bitis gabonica rhinoceros, after slough.



Photo: H. Stegers

Photo: H. Stegers



Bitis gabonica rhinoceros, before slough.

Apart from being a cruel act it is also useless to pull the fangs because shortly afterwards the next tooth develops which is then immediately ready for use. The venom of the snake is very useful in its defence against enemies, but is largely meant to catch and kill prey, it plays an important role in digestion, because it more or less dissolves the prey from inside. A prey bitten but not eaten by a Gaboon Viper will rot much quicker than any other dead prey.

■ CARE

Often I hear from fellow snake keepers that a few weeks after their purchase Gaboon vipers die without looking ill. The problem with this snake is the very bad care they receive from their captors and the stress they undergo there. Many Gaboon vipers have small scars behind their heads, incurred from the rope with which they were caught and which is pulled tightly out of

fear of the snake. Therefore damage often occurs to the neck and the oesophagus/respiratory tract. Because the snake does not move about much it often does not find the water bowl (if present). Because of this Gaboon vipers often suffer from dehydration and it is therefore important to put the animals in a lukewarm bath for a considerable time after their purchase and so give them the opportunity to drink. Often, it is difficult to judge whether a viper is emaciated because they usually inflate themselves when they are disturbed; in any case the back should not have a sharp ridge. After purchase the animal should be left alone for at least two weeks at a temperature of 28°C during the day and 22- 24°C at night. A healthy Gaboon Viper will not pose any problems with feeding and will eat dead and live prey, one will notice that its appetite can be enormous. A Gaboon Viper that refuses to eat should be left alone for a week after an attempt and then one may try again. If it keeps refusing food after several attempts have been made, there is a fairly safe way to get the snake to eat without disturbing it too much and using only little force. A dead prey (preferably a rat) is taken with long tweezers (in case of a large Gaboon Viper at least 40-50 cm) and pushed gently between the lips of the snake. She may probably not take the prey immediately, but after pushing several times she will almost certainly bite the dead rat, and grasp it. After this the snake usually will eat the prey, and one will see that further feedings will not pose any problems.

The advantage in offering dead prey is that it is easy to administer treatment against worms. This brings us to the next problem that often occurs with imported animals, parasites. My first Gaboon vipers, which I obtained some ten years ago, died of lung worms two weeks after I bought them from a dealer. Later I obtai-

ned two *Bitis nasicornus* which were so heavily infested with roundworms and nematodes they were more dead than alive when I received them. Only after a year there faeces started to get somewhat firmer. The Gaboon vipers that I have in my care now were heavily infested with tapeworm and roundworm (there were worms of 16 cms long in the faeces). Two weeks after arrival they were treated with an anti-worm drug Vermox. This is a broad spectrum anti-worm drug which is however not effective against tapeworms. Two weeks later they were treated with Flubenol which is active against tapeworms. After that no more worms were observed in the faeces. Both worm treatments have the advantage that they cannot be overdosed (with normal usage).

The animals were wild caught specimens which were imported by a dealer from Austria. Because these animals were a gift, I first got to see them when I unwrapped them at home. The first look was a real shock for me, the colour of the animals was a dull dark brown, with hardly a pattern of blotches to be seen; seldom had I seen such ugly snakes, and I was greatly disappointed. But that was what I got, and I decided to make the best of it. So, I gave them a bath and the treatment against worms and got them to eat according to the method mentioned above. The female turned out to be a real garbage bin which I could feed every sort of prey. One time I fed her 6 adult rats and on the same day an adult wood pigeon that I found along the road (traffic victim). During their meal the snakes won't allow themselves to be disturbed at all, and they even continue eating when leaves or tiny bits of branches that are eaten along with the prey are removed with tweezers. The food is quickly digested and I find teeth in the faeces regularly (in one year seven from the female and

six from the male).

After five months the eyes of the female started to lose colour and only 14 days later she sloughed. There was an enormous difference in the animal before and after the slough, a true metamorphosis; the animal was far more beautiful than any other Gaboon Viper that I had had before. The male which sloughed two months later also became much more beautiful (see photographs). The female measures 153 cm and the male 136 cm. A good method to measure Gaboon vipers is the following one: you measure one or more of the oblong rectangles on the back of the snake, after which you compare them with the same blotches on a discarded skin after sloughing (a healthy Gaboon Viper always sheds its skin in one piece). When you turn the skin inside out and put it on an even surface without stretching it, it turns out that the sizes correspond and are reasonably accurate.

■ REPRODUCTION

The young are born in late summer after a gestation period of 12 months (Bill Branch, personal communication). In my view this can be attributed to the fact that females can store live sperm; which is not so uncommon in reptiles, and when the time is favourable fertilization takes place. In captivity the gestation period is usually much shorter. Mating usually takes place from August to December after which the young are born around March, depending on the actual date of fertilization. With large specimens the number of young can be up to 60 and they are between 25 and 35 cm long.

■ CONCLUSION

Those who have ever seen a real, living Gaboon Viper will agree that it is an imposing presence of incredible beauty; something which you are not likely to forget. However, this should not be the only criterium to buy such a snake. One should be aware that the Gaboon Viper is one of the deadliest snakes. This should also be well known with the other members of your family. You should never purchase these animals if you are afraid of them; when you are afraid you will often do things the wrong way or be negligent in your care. A large amount of respect should be present, which ensues that great care and no unnecessary risks are taken.

I have been bitten several times by *Trimeresurus albolabris* (with symptoms of poisoning); however, in each case it was due to my own carelessness. When you take good care of safety precautions, if you put venomous snakes in a place where no children or pets can intrude, and if you have terraria that can be securely locked it can be a beautiful hobby that offers longterm pleasure.

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Translated from Dutch by Astrid Gomes. English corrections by Lawrence Smith.

■ LITERATURE

Rosi, R. (1988). Captive breeding of *Bitis gabonica rhinoceros*. *Litteratura Serpentina* 8(4): 182-188. ■