

**THE CAPTIVE CARE AND BREEDING
OF THE AMUR RATSNAKE,
ELAPHE SCHRENCKI SCHRENCKI
(STRAUCH 1873)
AND THE SOUTHERN AMUR RATSNAKE,
ELAPHE SCHRENCKI ANOMALA
(BOULENGER 1916)**

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INTRODUCTION

For several years now I have kept Amur ratsnakes (*Elaphe schrencki ssp*) in the terrarium. I keep two pairs of the type species *Elaphe schrencki schrencki* and one pair of the subspecies *Elaphe schrencki anomala*. In this article I shall describe my experiences in keeping and breeding these snakes. In my opinion these snakes are very pleasant animals to keep in a terrarium and this especially applies to the type species.

For a more exact description of both subspecies and their distribution refer to K.D. Schulz (1988).

ELAPHE SCHRENCKI SCHRENCKI

The animals I maintain are about 160 cm long and have reached their maximum length. The two females and two males were born respectively in 1987 and 1990. Their colour is blackish blue and they have yellow coloured jaws. Faded beige bands run along their backs that become more and more yellow towards the tail.

TERRARIUM

The terrarium in which the animals are kept is 80 cm long, 50 cm wide and 70 cm high; it is made of plastic covered chipboard. The terrarium also contains a shelf on which the snakes can lay, which is about 20 cm beneath a reflector lamp that serves as a heat source. During Spring a 40 Watt reflector lamp is used for heating whilst during the Summer a 25 Watt reflector lamp is used to prevent overheating the animals. *Elaphe schrencki schrencki* do not do well at temperatures above 30°C. The animals become slow at these temperatures and often spend hours in the water bowl. The terrarium is



Foto 1: *Elaphe schrenckii schrenckii*

Foto: C. Langeveld



Foto 2: *Elaphe schrenckii anomala*

Foto: C. Langeveld

illuminated for 12 hours per day during the Spring/Summer and for 6-8 hours during Autumn. Two pieces of cork-bark in the terrarium serve as a hiding place for the snakes. The decoration is completed by a water bowl with a diameter of 20 cm. This water bowl is used almost exclusively for drinking. Except during periods of high temperature as mentioned before, I have never seen my snakes laying in the water bowl. For substrate I use woodchips.

BEHAVIOUR AND CARE

Elaphe schrencki schrencki show no aggressive behaviour in captivity and this is one of the reasons why they are so pleasant to keep. The animals are active during the day and move continuously around the terrarium. The snakes are also very curious and react to every movement in front of the terrarium. For this reason the activity pattern of *Elaphe schrencki schrencki* deviates strongly from that of most other *Elaphe* species which tend to be more active during the morning and evening. Because the snakes are not shy, the hiding places that are present in the terrarium are used only during the sloughing cycle and the period before hibernation.

Once a week the snakes are fed a half-grown rat or two adult mice. The prey is killed by me and presented to the snakes using a pair of tweezers. I feed the snakes dead prey because they handle live prey rather clumsily. Live prey is often bitten in the side or in the tail and so it is easily able to wound the snake. Because the snakes are apparently insatiable one is inclined to overfeed the animals. Therefore, to prevent them from becoming too fat I feed them moderately. *Elaphe schrencki schrencki* has a fast digestion rate and produces the first faeces after two days. These are deposited sometimes in the water bowl.

HIBERNATION

Because Amur ratsnakes come from a temperate area, my animals are put into hibernation for several months every year. At the end of July the animals themselves indicate that they are preparing for hibernation. The snakes stop eating large prey items and from August on they only eat nestmice or nestrats. In September they completely stop eating and begin to become less active. In October the light cycle is shortened and in the middle of November the illumination is completely switched off. At the end of November the animals are put in a styrofoam box which is half-filled with beech-leaves. I've chosen beech-leaves because apparently they contain almost no insects. Underneath beech trees there is hardly any undergrowth so the chance of harmful parasites is probably very small (i.e. ticks). The snakes are placed in a quiet room for a period of three to five months at a temperature between 5 - 15°C, depending on the temperature outside. The males and females are kept separately during this period. Every 3 - 4 weeks I inspect the snakes.

REPRODUCTION

Since 1990 I have successfully bred both females (see Van Marle & Langeveld, 1991). My experiences with respect to the 1993 breeding season are outlined below.

On February 23, 1993 the four snakes were taken out of hibernation and housed separately in two terraria. Upon checking one of the females (female 2) she appeared to make 'snivelling' noises during respiration. I suspected that she had caught a cold during hibernation and I took her to M. Maas, a veterinary surgeon in Waalwijk. After checking the faeces of the snake it became apparent that she had no worms, so an infection with lungworms could be excluded. A cold, was the diagnosis of the veterinary surgeon, and he injected her with a multivitamin preparation and antibiotics. After three weeks the cold disappeared, because of this cold I decided not to breed with her during 1993.

From March 13, the males were, in turn, placed with female 1 in the terrarium, which resulted in five copulations on March 13th and 21st, and on April 2nd, 8th and 11th respectively. Ten days after her last slough, on April 23rd, female 1 laid 19 eggs in a plastic freezer box. This box was half filled with moist woodchips and was placed in the terrarium after her last slough. The eggs were placed in an incubator where they were hatched, at a temperature between 26-28°C and at a humidity of 90-100%. After 44 days, on June 6, 1993, nineteen young snakes hatched out of the eggs. The juveniles sloughed after 9 days and independently started to eat nestmice within a week. In the past years, in which I've bred over 60 juveniles, there was not one that did not start to eat independently on either dead or live nestmice within 10 days. After I had sexed the hatchlings, there appeared to be 10 females and 9 males. Sexing was done by everting the hemipenes by softly pushing on the tail, from the tail towards the cloaca. When there are no hemipenes everted out of the cloaca, then you have a female. This way of sex-determination ("popping") is not 100% accurate, but with *Elaphe schrencki* I've never been wrong. When the young are older than two months this way of sexing is no longer advisory, then probing is a good way to determine the sexes. The young of *Elaphe schrencki schrencki* differ strongly from the adults in colour and markings as the young have brown and green bands. The juvenile markings disappear, as the young develop after about 12 months. The young snakes are not aggressive or shy, this in contradiction to most other young snakes and are raised easily. In their first year I don't put the young snakes in hibernation. It is remarkable that the animals themselves take a period of rest in December and January. They refuse to eat for a period of 4-6 weeks. By cooling the snakes to room temperature for some weeks and then warming them up again, they start to eat readily again. After three years the snakes are sexually mature.

ELAPHE SCHRENCKI ANOMALA

In addition to the four *Elaphe schrencki schrencki* I also keep a pair of *Elaphe schrencki anomala*. These snakes are not often seen in the terrarium in The Netherlands. The male and the female were respectively born in 1990 and 1989. *Elaphe schrencki anomala* differ strongly in colour and markings from the type species. Their colour is green/yellow and they have faint bands across their body, which become more black-coloured towards the tail. Over the body a faint grey haze is visible. The jaws of the snakes are yellow-coloured. When the snakes get older, they become more and more yellow and more beautiful in my opinion.

TERRARIUM

My animals are kept in a terrarium 80 cm long, 40 cm wide and 60 cm high. This terrarium is also made of plastic covered chipboard and halfway up there is a shelf. The terrarium is heated with a 25 Watt reflector lamp for 12 hours a day. This species appears not to be troubled by high temperatures. The terrarium is furnished with a climbing-branch and a water bowl with a diameter of 20 cm, woodchips are used as a substrate, pieces of cork and a piece of nut tree root are also included inside the terrarium.

BEHAVIOUR AND CARE

If you think that the captive care of *Elaphe schrenckii anomala* will resemble that of the type species, your hopes will be denied. Having kept the subspecies *anomala* for 3 years, I ask myself if there is any resemblance to be found between the two subspecies. *Elaphe schrenckii anomala* is very shy. When I enter the room and the snakes are in sight they immediately flee under the cork-bark. When the snakes are taken out of the terrarium for inspection or when I clean the terrarium they excrete a fluid from their anal gland that smells strongly like musk. The snakes are active during the evening, after the illumination is switched off, and during the night. It is therefore not unusual that the animals are not often seen in the terrarium.

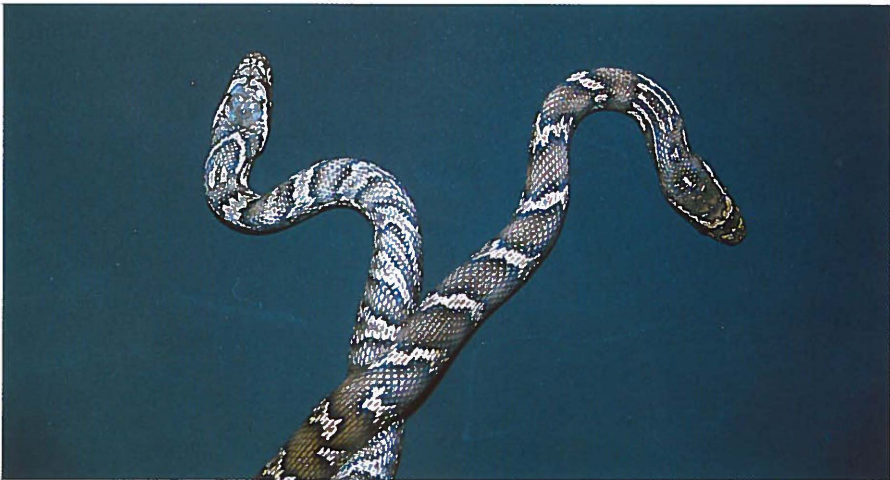


Foto 3: Jongen van *Elaphe schrenckii anomala* (links) en *Elaphe schrenckii schrenckii* (rechts). Juvenile of *E.s. anomala* (left) and *E.s. schrenckii* (right).

Foto: C. Langeveld.

The animals are fed once a week. I give them two adult mice or one half-grown rat which I offer alive. It is remarkable that the snakes lose their shyness during feeding and kill and eat their prey undisturbed by any activity outside the terrarium. After 4 days the snakes produce their first faeces.

HIBERNATION

For the same reason as the type species I put *Elaphe schrencki anomala* into hibernation for some months. In contradiction to the type species they do not indicate that they're preparing for hibernation. The animals keep eating until the beginning of October, the time that I stop feeding them. At the end of November the snakes start their hibernation in the same way as described for *Elaphe schrencki schrencki*. Prior to the hibernation period the light cycle in the terrarium is also shortened.

REPRODUCTION

Elaphe schrencki anomala I have bred for the first time in 1993, my experiences with this subspecies are described below.

On February 23, 1993, the animals were taken out of hibernation and each placed separately in a terrarium. On March 23rd and April 1st the male was placed with the female. This however did not lead to copulation. On April 4th, 8th, 11th and 19th the male was again placed with the female which resulted in copulations late in the evening. Eleven days after a slough, on May 26th 1993, the female laid ten eggs in the laybox that I'd placed in the terrarium after her slough. The eggs were placed in the incubator at 26-28°C and a humidity of 90-100 %. After 35 days, on July 4th 1993, all ten eggs hatched. The short incubation period of the eggs in comparison with the incubation period of the eggs of the type species was remarkable. After sexing there appeared to be 5 males and 5 females. After ten days all the juveniles sloughed and they all ate nestmice independently four days after sloughing. One female had a dorsal vertebra which was severely deformed. Despite this abnormality the female ate well and sloughed for the second time within a month, just like the other juveniles. This animal was later placed at the disposal of science in an effort to detect what the cause for this abnormality could have been.

After the first slough the young look, on first sight, exactly like the young of the type species. However, when you look at the snakes more closely you can see a clear difference in colouration of both subspecies. The young of the type species are darker coloured and the bands deviate. After four sloughs the differences are clearly visible. In the beginning the young of *Elaphe schrencki anomala* behave the same as those of the type species and are easy to raise. After about half a year they start to show the shy behaviour of their parents. It takes about two years before the colours have changed completely. In the course of the years however the colours keep changing and these snakes become prettier and prettier. After three years the snakes are sexually mature.

CONSIDERATION

When the data on both subspecies are compared there is little resemblance in behaviour and colours/markings. Therefore I wonder if they are both true subspecies. Possibly both

subspecies have to be considered as two separate species. Further study however is needed before this division into separate species can be made.

Finally I would like to remark that in my opinion the subspecies *Elaphe schrencki schrencki* is extremely suited to the novice snakekeeper. My own experience has shown that these snakes are easier to keep and raise than for example *Elaphe guttata guttata*, a snake that is often recommended to novice snakekeepers. Thanks to their liveliness and non-aggressive nature and their relatively straight forward reproductive biology, the keeping of this snake is a true pleasure. This is less evident for the subspecies *Elaphe schrencki anomala* taking into account their shyness and their apparent lack of activity. It is however a challenge to breed this snake in captivity.

BREEDING PROGRAMME

During the writing of this article (March 1994) I have applied to be the bookkeeper for *Elaphe schrencki schrencki*. The reason for me to applying to be bookkeeper for this species is in the first instance the fact that they are my favourite species of snakes. In addition I think that a successful breeding programme is important for various reasons and aims. These reasons/aims are, amongst others:

1. A stable population in captivity can be guaranteed, so in the future it will still be possible to keep these animals in the terrarium.
2. To make/keep the population in captivity healthy.
3. Inbreeding (as far as applicable for snakes) and the production of hybrids can be prevented by selective breeding and possibly the exchange of animals for breeding programmes (on a voluntarily basis).
4. The exchange of knowledge and data between the participants in a breeding programme with regard to breeding, diseases, rearing, etc.
5. In cooperation with the participants in the breeding programme the bookkeeper can serve as an oracle with regard to the species that he keeps/coordinates.
6. Novice snake keepers can be given better advice in the keeping of their animals - the welfare of specimens.
7. Commercial trade can be eliminated for the greater part with regard to the species within the various programmes.
8. In the future animals taken from the wild will no longer be necessary, with the exception of the introduction of 'fresh blood', from time to time - if indeed needed.

Of course there are many other reasons, but the eight mentioned above I think are the most important. I also want to recall that the documantation of a breeding programme is not connected to a society. Therefore it is possible to become a pedigree-participant/-keeper without being a member of a society. It is not the intention that a pedigree listing is started in each country. The intention is that there is only one breeding programme in the world for a certain species, i.e. *Elaphe schrencki schrencki*.

SUMMONS

When you are a keeper of *Elaphe schrencki schrencki* and you see the necessity for a pedigree listing, then you can become a participant in the pedigree of *Elaphe schrencki schrencki*. This summons is meant for all keepers of *Elaphe schrencki schrencki* worldwide.

Send me a postcard in Dutch, English or German with your address and telephone number. I will send you an application form.

REFERENCES

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