

A SUCCESSFUL BREEDING OF *SISTRURUS CATENATUS CATENATUS*

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Contents: The species - The adults - The terrarium - Hibernation - Mating and gestation - Giving birth - References.

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THE SPECIES

The Chipewa indians call *Sistrurus catenatus* Massasauga, which means 'large river mouth'. This name has probably been derived from the biotope of this snake in the Chipewa area; a biotope that mainly contains marshland near river mouths.

The subspecies *Sistrurus catenatus catenatus* is the eastern form of the species. Of all three subspecies, this one is the darkest. The basic colour is brownish grey and the belly is also darker in comparison to the other subspecies. On occasions the belly may even be completely black. The Eastern Massasauga lives especially in marshy areas and on moist prairies. In the summer they move to drier areas.

The second subspecies, *Sistrurus catenatus tergeminus* or Western Massasauga, has a light grey basic colour and a lighter coloured belly. This snake lives mainly in lowlands near rivers and small streams. Often they also search for drier places in summer.

Finally there is a third subspecies, which is called *Sistrurus catenatus edwardsi* or Desert Massasauga. The markings of this subspecies are somewhat less distinct and the snake itself is remarkably smaller and slender than the other two subspecies. Conant (1958) gives a maximum length of 52.5 cm; the two other subspecies reach almost 1 m. Behler & King (1988) give a record in length: 100.3 cm. For the area of distribution I refer to the map.

Massasaugas have a very varied diet, consisting of rodents, birds, fish, lizards, frogs, toads, insects and snakes. Depending on the area of distribution the hibernation can last more than six months. The mating season is in April/May, and from July until September between two and nineteen babies are born. The length of the newborn snakes varies between 13.6 to 25 cm (Wright & Wright, 1957).

THE ADULTS

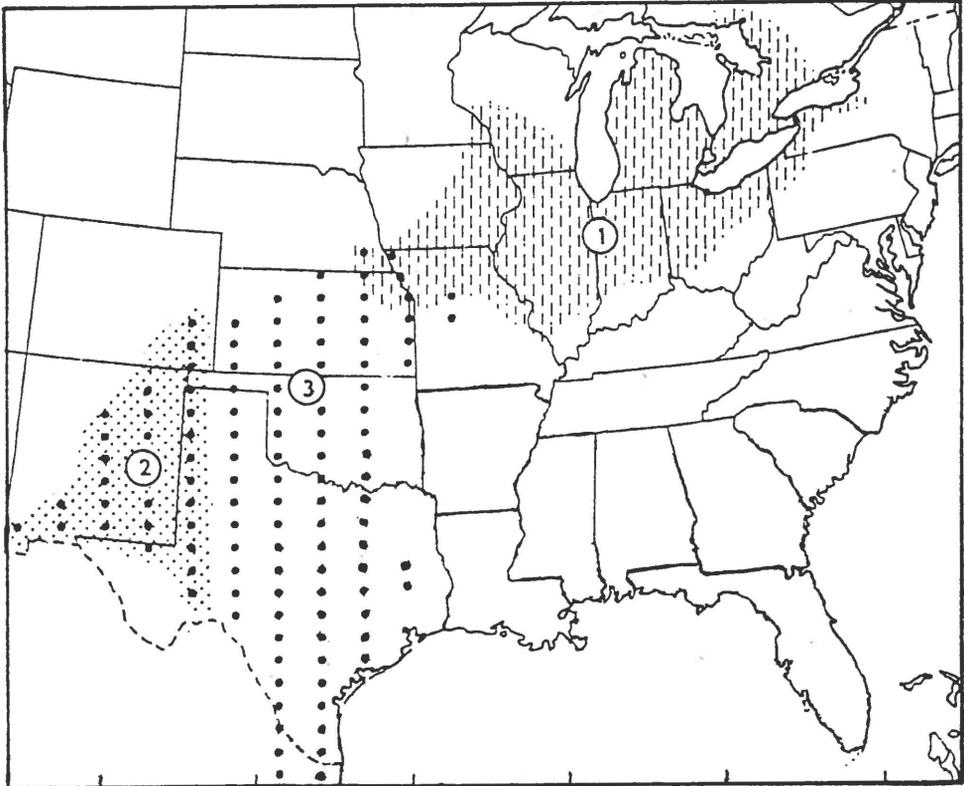
In the summer of 1989 I obtained a pair of *Sistrurus catenatus catenatus*. The male measured about 70 cm and weighed 230 g. The female measured about 75 g and weighed 280 g. The female was born in captivity in 1986; the male was caught wild and its age is unknown.

The male is very alert and starts rattling as soon the terrarium is opened. The female only rattled when she was pregnant. The male's rattle consists of five segments, the female's of six. The noise they are able to make with them is impressive. At the former owner's the male snake did not feed very well. Since I have owned the snake, it has eaten only one mouse just before hibernating. The female has a better appetite.

THE TERRARIUM

The terrarium in which the snakes are housed measures 120x60x50 cm (lwxhxh). It is made of wood with sliding windows (6 mm thick) at the front, which can be locked. The terrarium is heated by a 60 Watt spot light. The temperature is not equally distributed, so that the snakes can choose between cooler and warmer places. I have made four shelter places in the terrarium, which are used regularly. The snakes also like to bask under the lamp.

The floor is covered with fine saw dust. As a matter of fact, the snakes never hide in the substrate. A water tank 16 cm in width completes the fittings.



Map 1

Sistrurus -- 1: *c. catenatus*; 2: *c. edwardsi*; 3: *c. tergeminus*

HIBERNATION

I ceased feeding the animals in the middle of October 1989. In mid November I placed the snakes into a smaller terrarium (60x30x30 cm) with a flower pot as a hiding place. Naturally this terrarium also had a lock. I then placed it in a dark cupboard in the hall of my house.

The snakes stayed there for two months during which the temperature varied between 12 and 19°C. At this temperature, which is relatively high, food remains in the intestines do not get a chance to decay, because digestion continues normally. Even so, the male lost 3 g in weight in this period and the female 10 g.

MATING AND GESTATION

On 15 January I stopped the hibernation and put the male back into the large terrarium. The female was placed into another terrarium and put back into the male's terrarium on 25 January. The terrarium was lit during 14 hours each day.

On 29 January I saw the snakes making attempts to mate from 13.00 to 22.30 hours. On 3 February new attempts were made. And on 4 February yet further attempts were made and this time I saw the first mating at 15.56 hours, which lasted for 48 minutes. After this mating the male lost interest in the female. As there was someone in the room almost hourly, it is unlikely that further matings took place unobserved.

From 28 March the male began to eat again. He had obviously lost weight by now. As a matter of fact he started to eat very well (which he had not done before hibernation) and by the end of May 1990 weighed 280 g, which is more than 50 g more than after the end of the hibernation period. At the beginning of May 1990 he had sloughed for the first time after hibernation. During the period from 11 February to 1 May the female at 17 mice, 3 baby mice and 2 baby rats. After 1 May she refused to feed. In the meantime she grew in weight from 270 g to 420 g (on 15 May).

GIVING BIRTH

On 8 June at 17.45 hours I saw the female lying with its tail up. The fore part of the body was in a hiding place, the rest of the body was lying stretched out into the terrarium. The births took place as follows:

time	young	time	young
18.02	1	19.25	8
18.07	2	19.39	9
18.24	3	19.48	10
18.31	4	20.11	11
18.43	5	20.22	12
19.03	6	20.40	13
19.13	7	20.57	14

After giving birth the female weighed 280 g, which is 10 g more (!) than before the pregnancy started. Almost all the young were born with completely absorbed yolk and had broken the membrane before they came into the world. All had blue eyes and sloughed within 6 to 9 days. Their length varied between 21 and 22 cm. The average weight was 10.5 g. Some young snakes already ate their first dead baby mouse one day after being born, and within a few weeks all the young snakes had eaten. The female sloughed on 27 June and accepted food then for the first time since giving birth. It was her first sloughing after the hibernation.



Foto 1: *Sistrurus catenatus catenatus*, mannetje, male;
foto H. v.d. Beek.



Foto 2: *Sistrurus catenatus catenatus*, vrouwtje, female;
foto H. v.d. Beek.

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