

CARE, BREEDING AND OTHER THINGS WORTH KNOWING
ABOUT THE RUBBER BOA, CHARINA BOTTAE BOTTAE
(BLAINVILLE).

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INTRODUCTION

The species of the family of *Boidae* occur in a wide variety of forms and sizes. The best known by the public are especially the medium-sized and large species such as the Indian python, the Reticulated python, the Anaconda, the Boa Constrictor and the Rainbow boa. These species are frequently found in private collections and in those of zoological gardens. The *Boidae* family however includes a number of less familiar, small and sometimes extraordinary species, such as the Rubber boa. This species is almost never found in collections, surely not outside the countries of origin, North-western America and South-western Canada. Consequently there are almost no data about its life in captivity. I hope this article will contribute to getting the Rubber boa out of its anonymity.

Charina (female sex) is derived from the Greek word 'charieis', meaning 'elegant'. The name '*bottae*' honours Paolo Emilio Bottae, a nineteenth century researcher, archeologist and diplomat, who discovered the species.



Foto 1. *Charina bottae*, juv. Foto: John van der Pöts.

RANGE AND HABITAT

The range of *Charina bottae bottae* extends from the south of British Columbia (Canada) to southern California. The eastern part of its area of distribution is limited by the North American states of Montana, Wyoming and Utah. *Charina bottae bottae* is found from near sea level to a height of 2800 m (Stebbins, 1966).

The distribution within its range is not equable. Most specimens are caught in mountain areas (Stewart, 1977).

The habitat consists in woodlands, especially conifer woods, grassland, half dried up creeks and pools, and sometimes cavities in trees and old houses (Ross, 1931).

TAXONOMY AND IDENTIFICATION

The species *Charina bottae* is divided in two subspecies, *Charina bottae bottae* and *Charina bottae umbratica*. Klauber (1943) gives in an interesting article arguing for the identification of a third subspecies, *Charina bottae utahensis*, which was described by Van Denburgh in 1920. The arguments were, that *Charina bottae utahensis* counts less dorsal scale rows and has a usually undivided parietal. Nussbaum & Hoyer (1974) proved however that these characteristics are too variable to justify *Charina bottae utahensis* as a valid subspecies.

Because of the isolated distribution of *Charina bottae umbratica*, Erwin (1974) gives consideration to classifying it as a separate species.

The scalation of *Charina bottae bottae* is as follows: 39-53 dorsals; 182-217 ventrals; 25-34 subcaudals. The frontal scale is convex at the distal end.

Adult specimens vary in colour from light to dark brown, reddish brown, olive green, greenish brown and cream-colour. Some specimens are speckled. The ventral side varies from light to dark yellow, sometimes orange. Young are cream-coloured or pinkish, ventrally usually light yellow.

Charina bottae bottae grows to a length of up to 80 cm.

FOOD

Food of the Rubber boa consists of lizards (spiny species too, Shaw & Campbell, 1974), insects, small birds and rodents. *Charina bottae bottae* is known for its ophiophagy. Linder (1963) mentions a Rubber boa that ate a *Thamnophis elegans*, and subsequently tried to swallow a second garter snake of 70 cm. Young rattlers are also eaten

(Shaw & Campbell, 1974). Amusing are the observations of Peabody (1975) who describes a case of two Rubber boas, lodged together, one adult male of 34.7 g and a juvenile of 13.9 g, that took hold of the same mouse during feeding, and started to swallow it both from their own side. At a given moment the heads of the animals reached each other, and the adult male started to swallow the juvenile specimen, which defended itself by laying a coil around the neck of the adult male, whereafter it freed itself from the mouth of the male. A month later, again at feeding time, the described incident was repeated three times. A fourth time however, the owner had to intervene, as the adult had swallowed the juvenile for three quarters of its length.

Hudson (1957) mentions a pregnant female which was caught on 3 August 1953. In the morning of 5 October two young Rubber boas were found in the cage. When the female was killed the next day for reasons of preservation, a partly digested young was found in her stomach. The uterus was empty. This case does not necessarily indicate ophiophagy in the real sense, for then it would have been more likely that the adult female would have eaten all of her offspring. It seems evident to me that the swallowed young had been dead at birth. It happens frequently that specimens of *Boa* species which have just delivered, swallow their dead young, placentas and unfertilized eggs (Groves, 1980).

BEHAVIOUR

Charina bottae bottae is one of the least aggressive snakes that I know. I have heard of no single case of aggressive behaviour, not even of newborn or young specimens. Appearance as well as behaviour of the Rubber boa are rather based on camouflage and defence.

The defensive behaviour of the Rubber boa is adequately described by Keegan (1943), who describes how several specimens, when irritated, coiled themselves to a ball. The tails were thrust out of the coils and pointed upwards. As soon as these specimens in this position were touched, they immediately reacted by striking with the tail to the offensive object, in the course of which the head was kept inside the coils. This kind of behaviour is also observed with other snakes, such as with *Cylindrophis* by Barbour (1926) and with *Calabaria* by Pope, described by Schmidt (1927). Personally I observed behaviour of the same kind with young specimens, with the difference that simultaneously with the striking of the tails they squirted a strongly smelling liquid in the direction of the offender.

The Rubber boa hibernates. The duration of this period depends on the degree of latitude. In the northern part of its range, (Washington and British Columbia) there can be heavy frost in winter, with normal temperatures of -20°C .

Charina bottae bottae is active from the late afternoon until the early morning. During cloudy days it can also be observed at other times (Ross, 1931). It is notable that when the Rubber boa is active, rattlesnakes in the same habitat hide, and vice versa. This probably is connected with temperatures.

The Rubber boa is able to climb rough trees (Ross, 1931), an activity one would not expect from the Rubber boa, which is primarily adapted to a terrestrial way of living.

PURCHASE AND TERRARIUM

On 1 March 1984 I purchased my first Rubber boa, which had been caught during the summer of 1983 in northern California. The lack of spurs on

either side of the cloaca indicated that it must be a female. On the arrival her weight was 77 g, her length about 55 cm, so she was virtually full-grown. Later on she only became a lot more robust. On 28 May 1987 she weighed 141 g.

I housed her in a terrarium measuring 50x40x35 cm (hbw). The bottom of the cage was covered with tufts of peat moss. The terrarium was further furnished with a stump, which was gratefully used as a climbing and sometimes even sleeping convenience. On the floor there was a turned over flower pot and a small water basin, which was occasionally used to bathe. A 25 Watt light bulb, for lighting and necessary local heating, completed this furnishing. Especially during the morning hours the direct environment of the lamp was chosen as a place for warming up.

The temperature in the terrarium varied from 20 to 26°C during the day, with maximal values of 34°C next to the lamp. During the night the temperature fell to a minimum of 16°C (depending on the season). In order to maintain a sufficient air moisture I occasionally spray some water in the terrarium. Frequent spraying is unnecessary and in the long run even harmful. It is sufficient to keep the substrate a little moist.

As food only young mice are offered, weekly in ample numbers.

On 16 November 1985 I purchased a second Rubber boa. The clearly visible spurs made it clear that this was a male. It had been caught in the surroundings of San Francisco. Its colour was darker than that of the female. The male was housed in a terrarium virtually identical to that of the female. Its length on arrival was about 50 cm, its weight 35 g, which made it a little thin for a Rubber boa of that length.

A week after its arrival I offered the snake food, which it refused. This was not surprising, as Rubber boas hibernate during this time of the year.



Map 1. Distribution area of *Charina bottae bottae* (stippled) and *Charina bottae umbratica* (*).

Instead of further troubling the (sleepy) snake, I placed it in an insulating box, that I put in a cool place at temperatures of 12 to 16°C. After a hibernating period of three months the male was put in its terrarium again on 21 February 1986. After two weeks I offered it prey, which was again refused. The animal had become so thin by now, that I decided to force-feed it, which passed off satisfactorily. When one pinky had been just manipulated into its mouth, the snake did the rest. I force-fed three times during the following three weeks, before the male started to feed independently. Ever since it continued to feed well with rest intervals. On 28 May 1987 its weight was 68 g.

On 14 December 1986 I purchased a second female. On arrival it weighed 145 g and had a length of 70 cm. Her appetite was extremely good. Two months after her arrival she already weighed 177 g. This specimen had been in captivity for a length of time. Its origin is unknown, but it definitely belongs to the nominate form of the species, firstly because of its large size (*Charina bottae umbratica* remains significantly smaller), secondly because of the divided parietal shield (which is often undivided with *Charina bottae umbratica*; Erwin, 1974; Klauber, 1943). Furthermore, *Charina bottae umbratica* is extremely rare.

BREEDING EFFORTS AND PREGNANCY

On 15 May 1986 the male was introduced to the female for the first time. She reacted by opening her cloaca as soon as the male made contact with her. He tongue-flicked inquisitively over her, but made no mating effort. He was kept for two weeks with the female, before being put back in his own terrarium. On 18 June the female was introduced into the male's cage, but again nothing mentionable happened.

On 12 February 1987, one week after a hibernating period of three months, the male was brought to both females, which had not hibernated, though the lamp had been switched off during November and December, and no food had been offered during this period.

Some days after the introduction of the male, I observed mating efforts with the most recently arrived female. I never observed a copulation, but I did observe the male using its spurs to bring her in the right position (Murphy, Barker & Tryon, 1978).

From March on, this female refused all food and started to gain volume. From this time on she was lying continuously close to the lamp, only leaving this place when during warm days the temperature there exceeded 31°C.

THE YOUNG

In the afternoon of 9 June 1987 the female started to make straining movements. A moment later the first young was born. Within two hours a total number of 7 young was born, which is a large litter for *Charina bottae bottae*. Usually not more than four young are born in one litter (Svihla, 1943; Erwin, 1964; Hudson, 1957). The largest known litter is 8 (Wright & Wright, 1957).

In all relevant references females are involved which were already pregnant when captured.

All young were still in their membranes, from which they freed themselves after some minutes.

The sex ratio of the young was 2:5. Their weight varied, ranging from 9.2 tot 9.9 g. Their length was about 20 cm. The dorsal side was light brown, blending laterally to rosy. The ventral side and the tip of the tail were light yellow. The tail of newborn Rubber boas is not at all as blunt as that of adult wild specimens. These injuries are

the results of attacks by predators. The young were lodged in refrigerator boxes, furnished with tufts of peat moss and a small water basin. The boxes with the young were placed on a shelf under which a 5 Watt light bulb was fitted, that provided a slightly variable temperature in the boxes, ranging from 22 to 28°C. The young snakes sloughed from 19 June to 21 June, whereafter newborn pinkies were offered as food items. Only one young accepted this food. The other ones apparently considered it too large, for when I offered pieces of day-old chick on 23 July, they all accepted these. Some days thereafter pieces of pinkies were accepted too, so that the raising of the young became unproblematic. Four young were sold after they had started to feed independently. I kept three of them, which are still developing well.

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