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CAPTIVE BREEDING OF THE BRAZILIAN RAINBOW BOA *EPICRATES CENCHRIA CENCHRIA*

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AN INTRODUCTION TO THE GROUP

In 1984 I purchased 6 Brazilian Rainbow Boas. Male No. 1 (M.1) and Female No. 1 (F.1) were unrelated to each other and had been captive bred in California in late 1983. Male No. 2 (M.2) and Females 2, 3 and 4 (F.2, F.3, F.4) were bred in June 1984 by a breeder in Florida.

M.1 was probably the least attractive, being brown rather than orange or red. He did, however, have nice markings, the 'eyespots' down his flanks being centred with tangerine.

The four snakes bred in Florida were all a nice shade of orange with grey flanks and strong deep mauve patterning.

The most striking of the six had to be F.1 bred in California (see Fig. 1). Even at this young age she had a nice red colouration, again with strong mauve markings and a beautiful irridescence to her scales.

As they grow older *E.c. cenchria's* colours become richer and more attractive, unlike other members of the family such as *E.c. crassus* and *E.c. maura*. They also grow much larger than these other subspecies, attaining lengths in excess of 2 metres in some cases.

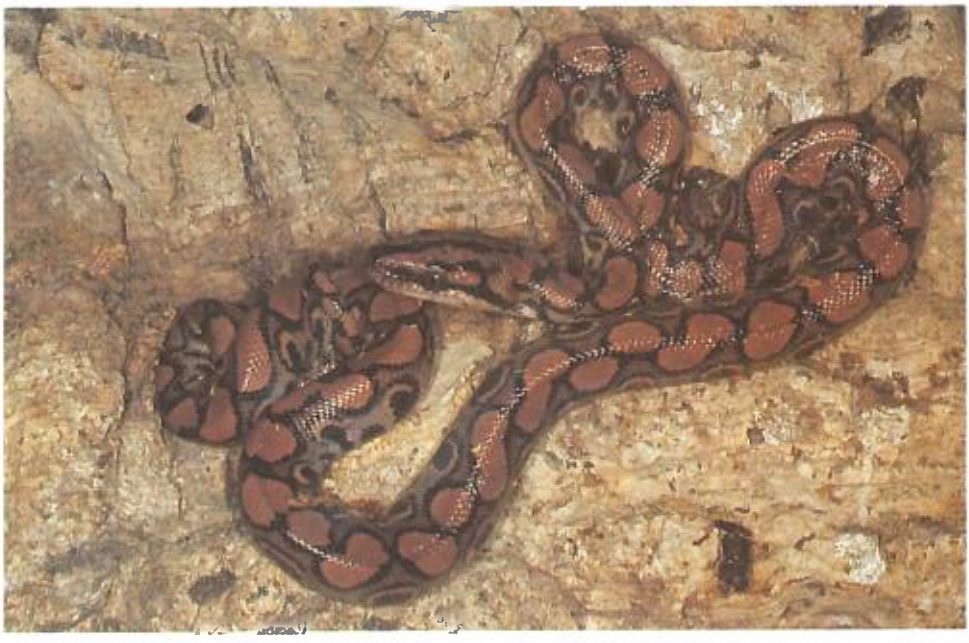

Photo: Chris Mattison

MAINTENANCE

They were originally housed in 12" x 12" plastic freezer tubs with ventilated sides. Newspaper was used as substrate. A clay pipe for hiding and to assist with sloughing and a small clay

water dish were the only furnishings. The boxes were placed on shelves in a small thermostatically controlled room with the temperature set at 29°C. A light cycle of 16 hrs day/8 hrs night was maintained by means of a 5 ft flourescent 'Northlight' connected to a timeswitch.

The young boas grew rapidly on a diet of freshly killed rodents. Within six months they had outgrown their boxes and were transferred to their current cages which are contiplas units with sliding glass fronts. Each unit measures 6 ft x 2 ft x 21 ins high. There is a partition splitting each unit into two 3 ft cages. Each snake has a 3 ft section to itself with a hide box at one end. A shelf was fixed above this and a large water bowl provided for drinking and bathing. The substrate was dust free wood shavings.

For heat and light there was a 60w incandescent light bulb fitted to the ceiling of each cage about 6" from the middle partition. There is a low wattage heat pad under the wood shavings below the bulb, giving a hotspot if needed. The cages were designed this way so as to give a temperature gradient, the coolest position being inside the hidebox where it rarely reaches 25°C even on the hottest summer's day. (Although I have no accurate records it seems to hover around the 18°-23°C mark). On the hotspot however it quite often reaches 35°C, and this is hardly ever used by the snakes. In the height of the summer the heat pads are switched off (unless the snake in the cage is gravid).

Needless to say these nocturnal jungle dwellers rarely venture out during the warm daylight hours and can only be seen prowling around their cages in the cool darkness of night. The average night-time low is 22°C and even as youngsters the boas functioned well at these temperatures.

The 16 hr day/8 hr night light cycle was maintained in these permanent cages and it was only changed when the animals were older and being prepared for breeding.

In November 1985 the boas were measured, their approximate lengths being:-

M.1	2 years old 4½ ft
F.1	2 years old 5½ ft
M.2)	
F.2)	18 months old 4 ft
F.3)	
F.4)	

PREPARING THE SNAKES FOR BREEDING

Although the snakes had grown considerably in length they still needed to put on quite a bit of weight before they could be bred.

Walsh and Davis (1983) had breeding success with females weighing 1751-2345 grams. Although my animals were not far off the weight of the lightest of their group, they still did not seem to be heavy enough, considering their length. (I had bred Boa Constrictors on three occasions previously and had found that the females had to be carrying a fair amount of fat prior to mating, in order to recover quickly and fully after parturition).

I do not think adult non-breeding snakes should be over fed but in the case of breeding females boas, which may not eat for 6 to 9 months while gravid, as much food as possible needs to be offered while they will eat it. A heavy feeding regime was introduced with a view to breeding the group in the 1986-87 season.

F.1 and M.1 were the main hope of success; they were just that much older and larger than the others, so I concentrated on these two in particular.

Food was offered every 7-10 days and if refused one day a fresh meal was offered the next and the next until something was eaten. F.1 rarely did refuse and in no time at all she was taking large adult rats, sometimes two per meal.

Over the next 12 months F.1 grew another 12 inches in length and when weighed in November 1986 scaled 2700 grams. The others were not weighed but all except F.4 were thought to be heavy enough to breed.

M.1 although nowhere near as big as F.1 had grown large white pelvic spurs. A year before these spurs were hardly visible and indeed M.2's spurs were much smaller than those of his older counterpart. This must be, I thought, a good sign of sexual maturity.

Brunner (1977) and Huff (1977), both working with *Epicrates* spp. found that a period of lower temperatures enhanced the breeding results of their snakes. My own experiences with Boa Constrictors showed a short period subjected to lower temperatures worked wonders.

I decided to cool off the group for a period of 6-8 weeks. I did not want to put the snakes through a hibernation, but just to drop the ambient temperature by a few degrees, especially the night-time low.

Firstly I introduced M.1 into F.1's cage and put M.2 in with F.2 and F.3. (F.4 was the lightest of all so she was kept separate and warm and feeding was continued).

I then turned off the heat pads, changed the 60w bulbs for 40w, reversed the light cycle to 8 hrs day/16 hrs night and made the reptile room generally colder by opening vents in the skylights and turning on an extractor fan fitted into an outside wall.

This was all carried out in one go, not as a gradual process. All feeding was stopped, in fact no food had been offered for a few weeks in order to prevent undigested food remaining in the stomachs of the animals during this colder period.

A careful check was kept on the room temperature and on the weather forecasts. If there was likely to be a severe frost or strong winds that night the vents were closed or the extractor turned off.

The cooling period was started on the 14th November 1986 and lasted 52 days in all. In that time the minimum night-time temperature hovered around 18°C. The lowest recorded was 15°C (on several nights). The highest during the day was 26°C with an average nearer to 24°C.

BREEDING

I decided, on the 4th January 1987, to warm the group up. I closed off the skylight vents and the extractor, replaced the 40w bulbs with 60w and turned on the heatpads. The day/night cycle was reversed back to 16 hrs day/8 hrs night. A room heater was connected to a thermostat in case of very low night temperatures (which indeed did happen shortly afterwards with the 1987 big freeze). This heater was set to keep the room temperature above 20°C.

Within 48 hours the cages were back to pre-cooling temperatures and the snakes gradually became more active. After one week they were offered food. The males refused but all three females ate a small rat each.

No mating activity was suspected until the morning of 14th February when the cage housing M.1 and F.1 was found in disarray. On the 17th February copulation was witnessed between these two snakes and lasted for at least 12 hours, this being the only time mating was actually observed.

M.1 and F.1 were kept together for another week but as no more activity took place M.1 was introduced into the cage containing F.2 and F.3. M.2 was transferred to F.1's cage. No action took place with any of these pairings and after about 10 days the males were put back with their original females.

It wasn't until May that M.2 showed any sexual interest at all in the females. He was seen on the 16th copulating with F.2. For several nights after this the cage was in disarray and as F.3 was also in with them it is possible he had mated both females.

Food had been offered occasionally since the start of mating activity but had been refused by all individuals except F.1. She had eaten a small rat on 17th March. This was to be her only meal for 9 months.

THE PREGNANCY

It was obvious by mid May that F.1 was gravid. A large egg-mass had started forming in her mid-body region. It felt, and looked as if she had just eaten a large rate. Over the following weeks this swelling deflated somewhat and spread tail-wards.

She was given the run of a 6 ft unit at this time with the choice of several hide boxes. She used two of these boxes during pregnancy. A warm styrofoam box filled with damp sphagnum moss was used most nights and when this became too warm during the day she moved into a cooler box containing dry wood shavings. Both boxes were placed partly over the heat pads. The moist box was that much warmer during the day because it was directly under a light bulb. The temperatures in these boxes ranged from 25-30°C in the cool box to 30-35°C in the warm one.

F.2 was examined on the 10th June and she too appeared gravid. She was separated and given the choice of two hideboxes. F.3 was thought to be gravid around this time but later proved not to be. She seemed to have formed the initial egg mass but this disappeared in time and she recommenced normal feeding.

During gestation F.1 spent more and more time inside the warmer moist box. She became very 'pear shaped' with the adipose tissue along her backbone being absorbed into the developing young. Her scales became extremely distended along her flanks and she became very solid to the touch.

She shed twice during pregnancy, once on the 10th June then again on the 4th August. F.2 shed only once, on the 26th September.

On the 10th August F.1 was found inside the nestbox completely upside down. I have witnessed this with gravid Burmese Pythons *(Python molurus bivittatus)* and have heard accounts of it happening with Childrens Pythons *Liasis childreni).* Also the Colombian Boa Constrictors I used to breed would sometimes lay on their side as if in some discomfort. This is probably a way of redistributing the weight of the eggs or developing young inside their bodies. F.1 was always a very placid snake but became quite irritable after her second shed. She did not actually strike but hissed a lot when disturbed. She was left in peace as much as possible.

THE BIRTH AND CARE OF YOUNG

On the 29th September F.1 gave birth to 19 live babies. There were 3 fully formed but dead youngsters and 3 infertile eggs. They were deposited inside the moss filled box at 0700 hrs in the morning. It took her a total of 1 hour 15 minutes from beginning to end. Afterwards she showed no interest in the neonates and crawled into a vacant box.

The birth came 56 days after the last shed which does not coroberate the findings of Walsh and Davis in their 1983 paper. I haven't found the shed to birth gap to be a good indicator of parturition time in live bearing boas. My experiences with *Boa. c. constrictor, Lichanura t. trivirgata* and now *Epicrates c. cenichria* show that shed to birth times can be vastly different between individuals of the same species.

At birth most of the young were active almost immediately, some were still in their fetal membranes and were placed in plastic tubs filled with damp sphagnum moss. The tubs were placed in the environmental room at a temperature of 29°C.

The only youngster measured was a female I decided to keep for future breeding. She was no bigger than the others and measured 450mm (Fig. 2).

Most of the brood had their mother's colouring of red, although a few looked like the father. Some had the mother's red colouring and the father's beautiful tangerine centered 'eyespots' along the flanks.

During the following 14 days all shed, and all had fed before they were 1 month old. The female did not eat until she had shed again, which was on the 16th October.

As mentioned, F.2 shed on the 26th September. All seemed well with her but unfortunately she passed a large quantity of infertile eggs and one partly formed baby on the 21st October.

She was very thin and wasted after this and is only just beginning to put on weight again, 4 months after the birth.

CONCLUSION

I feel the reason for the infertile eggs passed by F.2 was that she was too young. Although their growth is very rapid I think it best not to try pairing *E.c. cenchria* until their 3rd or 4th winter.

The males' pelvic spurs seem to be a good guide to their maturity: they became very noticeable on my two when they were between 2½ and 3 years of age. The possible reason for M.2 not showing any interest in mating until May, when M.1 had mated in February, could be that he just was not fully mature and those extra few months made all the difference.

Brazilian Rainbow Boas make ideal captives, they are extremely attractive and seemingly easy to breed, and for the most part are completely non-aggressive.

ACKNOWLEDGEMENTS

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