AN ACCOUNT OF REPRODUCTION IN THE GREAT PLAINS RAT SNAKE (*ELAPHE GUTTATA EMORYI*).

By: Don Reid, Reptile House Supervisor, Cotswold Wildlife Park, Oxfordshire, England.

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INTRODUCTION

The Great Plains rat snake (*Elaphe guttata emoryi*) of North America is a subspecies of the well-known Corn snake (*Elaphe guttata guttata*), to which it bears a close resemblance. In fact, in a black and white photograph the two subspecies would appear identical, for although the pattern is exactly the same, the subject of this account has no red colouring at all, the pattern being formed in varying tones of brown and brown-grey. Its distribution is to the west of its type species, with Texas at the centre of its range, going into Northern Mexico to the south, the eastern half of New Mexico to the west, Oklahoma and parts of Kansas to the north, and Southern Missouri and Northern Arkansas to the east.

Exceptional specimens can reach a length of 183 cm (6 ft). The habits of the Great Plains rat snake are similar to those of the Corn snake, being found on wooded hillsides, coniferous forests and dry stream gullies. It is also attracted to farms and farm buildings by the inevitable rodent populations which plunder the grain stores.

DIARY ACCOUNT

An account of the captive breeding of the Great Plains rat snake is given in diary form and covers the laying of the eggs and subsequent incubation and hatching.

Day 1 - 3 August 1978.
Yesterday the female was seen making a depression in the gravel of her cage. A laying box, consisting of a plastic container completely enclosed except for a small hole large enough to admit the snake, and containing damp sphagnum moss, had been introduced two days previously but was not used. She laid her eggs overnight in the depression and coiled on top of them. She did not react when gently removed so that the 10 eggs could be transferred to an incubation container. The eggs were all adherent, and no attempt was made to separate them as the risk of damage was too great. The eggs were weighed en-mass, and the collective weight was 255.3 g, an average weight of 25.53 g each. The medium used in the incubating container was sphagnum moss. The container itself was a fishing bait box, with all the air holes taped over except one pinhole. This was placed in an incubator set at 29°C. However, after only three hours the damp moss, which had previously been sterilised in an oven, began to smell so the medium was changed in favour of damp sand.

Day 12 - 15 August 1978.
Three of the eggs had been discolouring for some days, and as they looked distinctly unhealthy, today they were carefully dissected from the mass with a scalpel and were found to be infertile. The remaining 7 eggs looked good.

Day 41 - 13 September 1978.
The eggs were swelling noticeably and were touching the lid of the bait box, so the lid was discarded and the box was placed in a polythene bag.

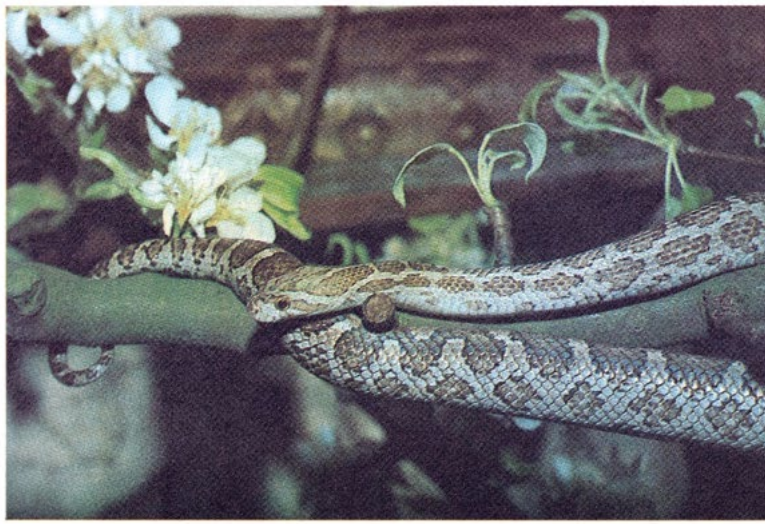


Fig. 1. *Elaphe guttata emoryi*. Foto: A.B. van Woerkom.

To maintain the humidity the box was removed periodically, and the inside of the bag lightly sprayed with water.

Day 48 - 20 September 1978.
All the eggs continued to look well.

Day 59 - 1 October 1978.
One egg had a very slight dent in the top of it, indicating that the young snake was moving about. Temperature in the incubator was a little low, 27°C, so it was increased slightly. All the eggs looked very good.

Day 60 - 2 October 1978.
One egg (not the dented one mentioned above) had one slit in it (10.15 am). (NB: A previous hatching of this subspecies took 71 days to hatch at a temperature range from 25-27°C; normal temperatures for present clutch have been 27-30°C, main-

ly 29°C.)

1.55 pm The slit egg now had a head sticking out. A second egg slit.

3.05 pm A third egg slit.

3.50 pm A fourth egg slit. Still none emerged.

7.40 pm Fifth and sixth eggs, including the dented one, had now slit. None emerged. Temperature increased to 30°C.

Day 61 - 3 October 1978.

8.00 am The remaining egg had slit overnight. One snake had emerged, an apparently perfect specimen.

1.30 pm Second snake hatched - again apparently perfect.

4.40 pm Third snake hatched - again apparently perfect.

7.00 pm Fourth snake hatched - again apparently perfect. This one had been out of the egg for some time as it was dry.

Day 62 - 4 October 1978.

7.15 am All three remaining eggs had hatched; apparently perfect specimens.

The young were all weighed as they hatched:
3 October 1978: 18.8 - 18.4 - 17.8 - 17.3 g.
4 October 1978: 18.9 - 17.5 - 19.5 g.
Average weight: 18.71 g.

All 7 siblings had their first slough overnight at an age of 6 or 7 days. All seven fed immediately. They proved to be 4 females, and 3 males.

OBSERVATIONS

Although the adult Great Plains rat snake attains similar proportions to the Yellow rat snake - and others of the *Elaphe obsoleta* subspecies - there is considerable difference in the size and weight of both eggs and young. In a clutch of 9 eggs of *Elaphe obsoleta quadrivittata* the eggs weighed an average of 7.04 g, whereas those of the present clutch of Great Plains rat snake averaged 25.53 g. Also, the resulting young of the litter are much larger: average for brood of *Elaphe obsoleta quadrivittata* 4.58 g, average for this brood of *Elaphe guttata emoryi* 18.71 g. Another outstanding difference between the young of *Elaphe guttata* and *Elaphe obsoleta* is that the former, at birth, have similar colouring to that of the adults, whereas in the latter the young are always blotched but these markings disappear with age. The young, like the adults of *Elaphe guttata emoryi*, are very docile and handleable, none having shown any sign of aggression.