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BREEDING *VARANUS BREVICAUDA*

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INTRODUCTION

There is a paucity of data on the reproductive biology of *V. brevicauda* (Pianka 1970, 1994; Schmida 1974: James *et al.* 1992). This paper provides a description of the breeding time and artificial incubation period for two clutches of *V. brevicauda* eggs.

RESULTS

A wild caught (Carnarvon Basin, Western Australia) female *V. brevicauda* was seen to mate on the 16 and 17 October 1994, a few days after it was caught. Four eggs were subsequently laid on 3 November and a fifth on 4 November, 1994. The body mass of the female after laying the eggs was 13.7 g. A long term captive (2 years) *V. brevicauda* laid four eggs on 7 November, 1994, and after laying the eggs had a body mass of 11.5 g. All eggs were incubated in a container of vermiculite-water mixture (1:1, based on mass) at 29 (± 1)°C. Eggs were inspected weekly and sprayed with a fine mist of water.

Two of the wild caught eggs hatched on 18 February 1995, 107 days later. Two of the eggs from the long term captive *V. brevicauda* hatched on the 24 and 25 February, 1995, after 108/109 days (Plate 1). A fully formed neonate failed to hatch and the egg was opened on the 27 February, 1995. The mass, snout-to-vent (SVL) and total length (TL) of the neonates are shown in Table 1.

Neonates were maintained in a small, indoor glass aquarium with an incandescent light providing the heat source 10 hours per day. The four neonate *V. brevicauda* readily ate small crickets and mealworms. The smallest *V. brevicauda* died on 9 May 1995; the cause was unknown.

The growth rate of the neonates was very rapid during the first month, with one goanna almost doubling its mass in 30 days (#1, 1.8 to 3.4g). As the cooler weather arrived, their feeding noticeably decreased and they became much less active each day, with the consequence that their rate of grow slowed. The light source was decreased to approximately 4 hours per day in early April, then to 4 hours per day every second day in early May. The rate of growth for these four neonates was almost linear on a log-log plot. During the first 150 days of life, SVL (mm) increased at the rate of $44.67 days^{0.0545}$ and body mass increased at the rate of $1.63 days^{0.12}$.

Plate 1. Neonate *Varanus brevicauda* at birth showing egg case

DISCUSSION

Clutch size for *V. brevicauda* appears to be generally about two or three (Pianka 1970; 1994, Schmida 1974) suggesting that the clutch sizes for these two *V. brevicauda* are higher than might be normally expected. A clutch size of two for *V. brevicauda* is consistent with that predicted for a goanna of this size from the correlation between SVL and clutch size for other varanids (James *et al.* 1992). James *et al.* (1992) suggest the reproductive period in a natural environment is probably between October and December, which concurs with the findings reported here. Hatching in February provides the neonates with a couple of months of warm weather to forage and increase fat stores to enable them to survive the period of winter inactivity if they live in the inland areas (Pianka 1994), although I found them active in July at Cleaverville.

Table 1. Size of five *V. brevicauda* at birth

	Mass (g)	SVL (mm)	TL (mm)
Lizard 1	1.3	40	88
Lizard 2	1.8	48	100
Lizard 3	1.8	48	98
Lizard 4	2.2	48	94
Lizard 5 (dead)	2.3	48	96

Schmida (1974) reports hatching three *V. brevicauda* at a temperature between 18 – 25°C with the eggs being laid in October. The period of incubation is unclear. He reports their total length at birth at 80 mm, appreciably smaller than the five *V. brevicauda* reported here.

Within two days of hatching, these neonates would arch their necks, and inflate their gular pouch and abdomen in response to a finger being placed within the vicinity of their head. This aggressive stance has been note in adult *V. brevicauda* (Pianka 1995) and in other larger species (Green and King, 1993).

ACKNOWLEDGEMENTS

Goannas were caught and held under a licence issued by the Department of Conservation and Land Management.

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