

CAPTIVE REPRODUCTION IN *PSEUDECHIS AUSTRALIS* (SERPENTES: ELAPIDAE) FROM WESTERN AUSTRALIA, AND NOTES ON OTHER *PSEUDECHIS* SPECIES

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Fitzgerald & Pollitt (1981) and Fyfe (1991) determined that oviparity is the mode of reproduction in *Pseudechis australis* from eastern and central Australia respectively. Here I record oviparity in this species from Whim Creek, north Western Australia (20°51'S 117°50'E) suggesting oviparity is consistent in populations from the extreme west to the east of Australia. In WA the known southern extremity of this species' distribution is Yornaning (32°45'S 117°09'E) (Smith, 1982). In this area the dorsal colour of individuals is dark brownish-black to black. John Dell of the WA Museum has suggested to me that the "black mulga" of the Yornaning area may in fact be an undescribed taxon.

As well as presenting my data on *P.australis* I combine it with previously published records and include a comparison with the other oviparous members of *Pseudechis*, *butleri*, *colletti* and *guttatus* (Table 1). To date I have been unsuccessful in my endeavours to hatch eggs from *P.butleri*. This may be related to the fact that the female was X-rayed in 1987. Nevertheless I have combined my previously unpublished data on this species with that of Fitzgerald & Mengden (1987).

THIS RECORD

A 115cm female *P.australis* was placed in a 100 x 75cm all-glass terrarium with an 85cm male on the morning of 22 September 1993. Jerking and tail-thrashing in the male and tail thrashing only in the female was displayed immediately, culminating in the female attempting to elude the pursuing male. The snakes were not observed again until 3.30pm, at which time they were in copula and this continued for a further 40 minutes, during which the female displayed considerable swelling for the circumference of the body immediately forward of the cloaca. As soon as the pair parted the female was returned to her regular 90 x 40cm all-glass terrarium.

Although I have recorded multiple matings in pythons I have yet to observe this in the elapids that I have bred. After successful copulation the female will not respond to the male's attempts to mate again however Charles (1983) records multiple mating in *P.colletti*.

Six days later I noticed pronounced lateral swellings in the female, one on each side and about 1cm wide extending from the cloaca forward for about 3cm. This swelling was unlike that observed during copulation in that it was restricted to the sides of the body. It subsided gradually over the next three days.

On the 3 November, 42 days after mating 16 eggs, 14 of which were good and 2 partly developed small yellowish spheres, were deposited. The mean length, width (mm) and weight (g) of the 14 good eggs was 40.14, 22.93 and 13.05 respectively. The combined mass of all 16 eggs was 193.63g and the female's weight immediately post parturition was 473.5g (Relative Clutch Mass = 0.409).

The eggs were incubated in a 3 to 1 vermiculite to water mixture at 30°C.

All but two hatched between 27-30 January 1994 which gave an incubation time of 85-88 days. No total lengths were recorded however the mean SVL of 11 neonates was 244.2mm (231-260) and weight was 9.4g (7.93-10.42). Postnatal sloughs occurred 17-22 days post hatching.

Figure 1 illustrates what I thought was a two-headed snake. To avoid any problems a two-headed individual might have in hatching I made an incision in the egg shell between them.

Table 1. Comparative Egg and Neonate Data in *Pseudechis* spp

DAYS BETWEEN MATING AND EGGLAYING:	
<i>australis</i>	45-63 days ¹ ; 42 ²
<i>colletti</i>	72-79 days from last mating ³
FECUNDITY:	
<i>australis</i>	9-16 (mean 12.75, N8) ^{1,2,6}
<i>butleri</i>	4-12 (mean 8, N6) ^{2,4}
<i>colletti</i>	7-12 (mean 8.66, N3) ³
<i>guttatus</i>	7-13 (mean 9.5, N4) ⁵
EGG SIZE	
<i>australis</i>	33 -46 (40mm) x 21 - 25 (23) x 11.6 - 14.4 (13g) N1 ² clutch
<i>butleri</i>	41 -75 (58.6mm) x 21 - 25 (24) x 10.7 - 29.7 (18g) N5 clutches for length/width & N2 ² for weight
<i>colletti</i>	W 28 56 (36.6g) ³
<i>guttatus</i>	No data
INCUBATION PERIOD:	
<i>australis</i>	70-72 days (22-32°C) ¹ ; 65-68 (30-32°C) ⁶ ; 85-88 (30°C) ²
<i>butleri</i>	65-80 days at 30°C ⁴
<i>colletti</i>	82-91 days at 27°C ³
<i>guttatus</i>	77 days at room temperature and 84 at 24°C ⁵
NEONATE SIZE:	
<i>australis</i>	SVL 198-260 (222mm), W 5.3-10.6 (8.7g) ¹ ; 285-330 (312), W 13g ⁶ ; 231-260 (244), W 7.9-10.4 (9.4g) ²
<i>butleri</i>	SVL 310-350 (324mm) ³
<i>colletti</i>	SVL 250-290 (276mm) ⁴
<i>guttatus</i>	SVL (2 weeks post hatching) 226-242 (234mm) ⁵

SOURCE OF DATA

¹ Fitzgerald & Pollitt (1981)

² Bush, B. Present study.

³ Charles (1983)

⁴ Fitzgerald & Mengden (1987)

⁵ Charles *et al* (1979)

⁶ Fyfe (1991)

Imagine my disappointment when two neonates finally crawled out! This pair had respective SVL's and weights of 197, 192mm and 4.8, 4.18g or approximately half that of the mean weight of the other 11 neonates.

The smallest and largest juveniles respectively at 12 months of age have SVL's of 290 and 615mm (at hatching 192 and 260) and weight 34.14 and 119.55g (4.18 and 10.42).



Figure 1. Two neonatal *Pseudechis australis* emerging from a single egg.

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