

SOME RECORDS OF REPRODUCTION IN CAPTIVE LIZARDS AND SNAKES

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Relatively few data on reproduction in Australian reptiles have been published for species that are not commonly kept in live collections. Presented here are 18 records of reproduction in egg-laying, and 15 records in livebearing lizards and snakes of 20 species. Data included for each record, where known, are date of laying/birth (parturition), female snout-vent length in mm (♀ SVL) and weight in grams (W) recorded immediately after parturition, number of eggs or young (N), egg length/width in mm and weight in gm with means in brackets (E), new-born/hatchling length in mm and weight in gm with means in brackets (Juvenile) and reproductive effort (Re) i.e. total live weight of eggs/young presented as a percentage of female's weight (immediately after laying/birthing). For comparison with other published data which express Re as a proportion of one, move decimal point to the left of first figure i.e. in *Ctenophorus reticulatus* the Re is 59.6 (%) or 0.596.

Unless a locality is shown following parturition date the record is for a specimen from Lort River, Western Australia (33°44'S, 121°17'E).

All eggs were incubated on vermiculite 1 to 1 by weight with water or, more successfully in later records, 1 part water to 2 parts vermiculite. Incubation was carried out in a controlled temperature environment in most cases. In a few cases the eggs were left at room temperature. Those records from Lort River were incubated there and are believed to have been exposed to a range of 12° - 39°C whereas those incubated at room temperature in Perth, Western Australia were exposed to marginally higher temperatures 15° - 44°C.

The high Re (66%) in *Notechis curtus* (N=4) confirms Shine's (1982) belief that relative clutch mass in this species "must be unusually high". If the 1982 record is deleted as possibly aberrant, mean Re rises to 75.9 for the remaining 3 records compared to 51.4 (N=4) in *N. coronatus* and 66 (N=1) in *Rhinoplocephalus nigriceps*, although sample sizes are small.

Taxonomy for the elapid records follows Storr *et al* (1986) especially out of respect for the senior author, Dr Glen Milton Storr (1921-1990): an awesome herpetologist!

OVIPAROUS SPECIES

Ctenophorus reticulatus

11.01.1985	Kalgoorlie	WA
♀ SVL 80 mm	W 12.2 gm	N 7
E mean (17.5 x 9.5) mm		W mean (1.04) gm
Re 59.6		

Pogona m. minor

22.11.1981

N 9

Only one egg hatched after 147 days at room temperature.

9.11.1983

♀ SVL 108 mm	W 31.8 gm	N 7
E 21-23 (21.9) x 12-13 (12.6) mm		W 1.85-2.06 (1.93) gm

Re 42.6
Juvenile SVL 34-37 (35.7) mm W 1.66-1.92 (1.8) gm
All hatched late December and early January after 48-54 days at 28°C.

20.11.1983
♀ SVL 123 mm W 42.8 gm N 8
E 22-24 (23.4) x 13-14 (13.8) mm W 2.37-2.86 (2.73) gm
Re 51.1
Juvenile SVL 32-34 (33.1) mm W 2.02-2.39 (2.2) gm
All hatched early January after 45-49 days at 30°C.

29.12.1985
♀ SVL 123 mm W 30.7 gm N 7
E 20-22.5 (21.4) x 12-13.5 (12.7) mm W 1.92-2.33 (2.1) gm
Re 47.7
Juvenile SVL 35 mm
Only two hatched after 72 and 82 days at 25°C.

Moloch horridus

10.11.1984 Norseman WA
♀ SVL 91 mm W 38 gm N 7
E 23-25 (23.7) x 13-16 (14.1) mm W 2.57-2.98 (2.72) gm
Re 50

Crenadactylus ocellatus

16.12.1983
♀ SVL 35 mm W 0.8 gm N 2
E 8 x 4.5-5 (4.75) mm W 0.111-0.124 (0.118) gm
Re 29.4

Diplodactylus assimilis

1.02.1984 Menzies WA
♀ SVL 62 mm W 4.1 gm N 2
E 13-14 (13.5) x 8 mm W 0.39-0.49 (0.44) gm
Re 21.5
Possibly infertile

Diplodactylus pulcher

11.02.1984 Broad Arrow WA
♀ SVL 55 mm W 2.47 gm N 2
E 14-15 (14.5) x 7.5-8 (7.75) mm W 0.54-0.62 (0.58) gm
Re 47
Juvenile SVL 27-28 (27.5) mm W 0.566-0.579 (0.573) gm
Hatched on 20 March after 39 days at 30°C

Delma butleri

26.12.1984 Leinster WA
♀ SVL 89 mm W 5.2 gm N 2
E 19-20 (19.5) x 8 mm W 0.799-0.852 (0.826) gm
Re 31.7

Pygopus lepidopodus

13.12.1985
♀ SVL 185 mm W 26.08 gm N 2

E 25.5-28 (26.75) x 10.5 mm W 1.65-1.72 (1.69) gm
Re 12.9
Possibly infertile

Pygopus n. nigriceps

14.12.1989 Paynes Find WA
♀ SVL 165 mm W 14.72 gm N 2
E 18-18.5 (18.25) x 12-13 (12.5) mm W 2.57-2.63 (2.6) gm
Re 35.3
Juvenile SVL 72-76 (74) mm W 2.53-2.54 (2.535) gm
Hatched 25/26 February after 73-74 days at 30°C.
Postnatal slough 9 March

Menetia greyii

30.11.1983
♀ SVL 29 mm W 0.423 gm N 2
E 8 x 4-4.5 (4.25) mm W 0.091-0.104 (0.098) gm
Re 45.4
Juvenile SVL 14-15 (14.5) mm W 0.033-0.046 (0.04) gm
Hatched 2 February after 64 days at 25°C.

Morethia obscura

22.11.1982
N 4
All hatched 23-25 February after 93-95 days at room temperature (est. mean 19.6°C)
13.01.1983
♀ SVL 46 mm W 1.5 gm N 4
E 9.5-10 (9.9) x 5-5.5 (5.3) mm W 0.143-0.163 (0.153) gm
Re 40.8
Juvenile SVL 19 mm W 0.15 gm
Hatched 11 February after 29 days at 30°C.

Pseudonaja s. affinis

9.01.1985
♀ SVL 1170 mm W N/A N 11
E 39-45 (40.7) x 18-21 (19.7) mm W 8.45-10.01 (9.4) gm
Re N/A
18.12.1988 Perth WA
♀ SVL 1360 mm W N/A N 13
E 37-42 (40) x 18-25 (22) mm W 8.85-12.9 (11.1) gm
Re N/A
Juvenile SVL 208-219 (213) mm W 5.93-6.82 (6.71) gm
Hatched 1 April after 105 days at room temperature (est. mean 23°C)
22.01.1990 Chidlow WA
♀ SVL 1490 mm W N/A N 27
E 25-32 (29.4) x 15-23 (20.9) mm W 3.23-9.15 (7.3) gm
Re N/A
Juvenile SVL 194-216 (203) mm W 4.75-6.37 (5.59) gm
Commenced hatching 16 March and completed by 24 March after 53-61 days at 30°C.
All but 2 hatched. The failures were very small eggs weighing 3.23 gm and 4.23 gm.

VIVIPAROUS SPECIES

Hemiergis initialis

10.02.1983

♀ SVL 45 mm W 0.585 gm N 2

Juvenile SVL 18.5-19 (18.75) mm W 0.085-0.091 (0.088) gm

Re 30.1

Hemiergis peronii

14.02.1983

♀ SVL 70 mm W 3.413 gm

N 4

Juvenile SVL 26-28 (26.8) mm

W 0.286-0.299 (0.293) gm

Re 34.3

1.03.1984

♀ SVL 67 mm W 2.57 gm

N 3

Juvenile SVL 25 mm

W 0.26-0.29 (0.27) gm

Re 31.9

Tiliqua occipitalis

10.02.1983

♀ SVL 290 mm W 282 gm

N 4

Juvenile SVL 105-107 (105.8) mm

W 26.3-28.3 (27.6) gm

Re 39.1

Notechis coronatus

8.03.1983

♀ SVL 362 mm W 21.06 gm

N 4

Juvenile SVL 120-135 (128) mm

W 2.24-2.38 (2.33) gm

Re 43.9

Postnatal slough 21 March

31.03.1984

♀ SVL 315 mm W 13.46 gm

N 4

Juvenile SVL 102-110 (107.5) mm

W 1.4-1.57 (1.48) gm

Re 44

Postnatal slough 11 April

6.04.1984

♀ SVL 348 mm W 25.42 gm

N 3 + 4 yolks

Juvenile SVL 118-124 (122) mm

W 2-2.18 (2.1) gm

Re 57.8 calculated by including each yolk at mean neonate weight.

Postnatal slough 17 April

30.04.1984

♀ SVL 365 mm W 22.95 gm

N 6

Juvenile SVL 126-138 (132.8) mm

W 2.14-2.44 (2.3) gm

Re 60.3

Postnatal slough 12 May

Notechis curtus

28.03.1982

♀ SVL 420 mm W 23.67 gm

N 8

Juvenile SVL 82-88 (85) mm

W 1.03-1.11 (1.08) gm

Juvenile SVL 82-88 (85) mm W 1.03-1.11 (1.08) gm

Re 36.3

Postnatal slough 18 April

27.03.1984

♀ SVL 320 mm W 18.4 gm N 4 + 3 yolks

Juvenile SVL 110-116 (112.5) mm W 2.02-2.1 (2.06) gm

Re 78.3 calculated by including each yolk at mean neonate weight.

Postnatal slough 11 April

13.04.1984

♀ SVL 354 mm W 25.45 gm N 8

Juvenile SVL 110-122 (117.3) mm W 1.95-2.37 (2.17) gm

Re 68.1

Postnatal slough 28 April

9.04.1987

♀ SVL 300 mm W 16.95 gm N 7

Juvenile SVL 102-113 (107.1) mm W 1.8-2.1 (1.97) gm

Re 81.2

Postnatal sloughs 23-25 April

Notechis mastersii

8.04.1987 Madura WA

♀ SVL 234 mm W 5.75 gm N 3

Juvenile SVL 84-87 (85.5) mm based on 2 neonates.

The third was born dead SVL 42 mm.

W 0.58-0.64 (0.61) gm

Re 31.8

Postnatal slough immediately after birth

Notechis s. occidentalis

20.03.1985

♀ SVL 1070 mm W 587 gm N 35

Juvenile SVL 200-218 (208.4) mm W 5.55-6.59 (6.05) gm

Re 36.1

Postnatal slough immediately after birth.

Litter comprised 23 male and 12 female

Rhinocephalus nigriceps

14.04.1984

♀ SVL 322 mm W 10.21 gm N 4

Juvenile SVL 108-122 (115.3) mm W 1.53-1.89 (1.7) gm

Re 66.5

Postnatal slough 22 April

REFERENCES

Shine, R. (1982) Ecology of the Australian elapid snake *Echiopsis curta*. *Jnl. Herp.* 16(4):388-393.

Storr, G.M., Smith, L.A. and Johnstone, R.E. (1986) *Snakes of Western Australia*. WA Museum Perth.