Ecological Archives **E088-021-A1**

Lígia Pizzatto, Selma M. Almeida-Santos, and Richard Shine. 2007. Life-history adaptations to arboreality in snakes. *Ecology* 88:359–366.

Appendix A. A table showing mean adult body sizes, numbers of ventral and subcaudal scales, and microhabitat use in boid and pythonid snakes.

TABLE A1. Mean adult body sizes, numbers of ventral and subcaudal scales, and microhabitat use in boid and pythonid snakes. In each case, mean values are followed by standard deviations, ranges, and sample sizes. Numbers in parentheses in the microhabitat column represent the proportion of snakes of each taxon found in arboreal situations. SVL = snout-vent length. Sample sizes refer to the number of preserved specimens examined for each taxon.

Species	Mean SVL ± SD (mm)	Scalation	Microhabitat
Boids			
Candoia carinata	642.6 ± 225.7 (357 – 1324, *n* = 143)	Ventrals: 160–200 Subcaudals: 38–56	Terrestrial (0)
Candoia aspera	556.6 ± 151.4 (335 – 950, *n* = 68)	Ventrals: 131–146 Subcaudals: 15–21	Terrestrial (0.5)
Candoia bibroni	1028.3 ± 315.0 (470 – 1800, *n* = 57)	Ventrals: 210–252 Subcaudals: 50–62	Arboreal (1.0)
Boa constrictor amarali	1451.6 ± 184.8 (1060 – 2130, *n* = 117)	Ventrals: 226–263 Subcaudals: 43–52	Terrestrial (0.375)

Boa constrictor constrictor	1945.9 ± 506.7 (1162 – 3713, *n* = 111)	Ventrals: 250–284 Subcaudals: 49–62	Terrestrial (0.300)
Corallus caninus	1284.6 ± 241.7 (835 – 1710, *n* = 36)	Ventrals: 188–219 Subcaudals: 64–79	Arboreal (1.0)
Corallus hortulanus	1309.6 ± 169.5 (802 – 1887, *n* = 218)	Ventrals: 258–297 Subcaudals: 105–137	Arboreal (0.960)
Corallus cropanii†	1278.7 ± 189.8 (1080 – 1510, *n* = 4)	Ventrals: 179–200 Subcaudals: 51–53	Terrestrial (0.333)
Epicrates c. cenchria	1484.8 ± 174.5 (946 – 1838, *n* = 83)	Ventrals: 246–279 Subcaudals: 45–68	Terrestrial (0.200)
Epicrates c. assisi	1212 ± 129.7 (988 – 1480, *n* = 43)	Ventrals: 240–260 Subcaudals: 35–62	Terrestrial (0)
Epicrates c. crassus	1097 ± 106.5 (876 – 1371, *n* = 62)	Ventrals: 214–247 Subcaudals: 33–52	Terrestrial (0)
Sanzinia madagascariensis	1394 ± 281.4 (1100 – 1910, *n* = 18)	Ventrals: 199–232 Subcaudals: 35–46	Arboreal (1.0)
Eunectes murinus	2551.9 ± 748.8 (1335 – 4480, *n* = 39)	Ventrals: 239–266 Subcaudals: 55–78	Aquatic (0)
Eunectes notaeus	1928.7 ± 308.2 (1515 – 2500, *n* = 10)	Ventrals: 213–237	Aquatic

		Subcaudals: 44–61	(0)
Eunectes deschauenseei	1598 ± 263.3 (1200 – 2313, *n* = 25)	Ventrals: 214–236 Subcaudals: 49–62	Aquatic (0)
Pythonids			
Aspidites melanocephalus	1615.9 ± 320.4 (950 – 2550, *n* = 44)	Ventrals: 315–359 Subcaudals: 60–70	Terrestrial (0)
Aspidites ramsayi	1519.7 ± 375.3 (972 – 2280, *n* = 43)	Ventrals: 273–308 Subcaudals: 45–55	Terrestrial (0)
Antaresia childreni	715.2 ± 134.9 (390-990, *n* = 90)	Ventrals: 251–300 Subcaudals: 38–57	Terrestrial (0)
Antaresia stimsoni	887.4 ± 183.5 (552 – 1270, *n* = 51)	Ventrals: 243–302 Subcaudals: 38–53	Terrestrial (0)
Antaresia maculosa	783.3 ± 127.1 (575 – 1035, *n* = 23)	Ventrals: 246–287 Subcaudals: 37–48	Terrestrial (0)
Bothrochilus boa	884.3 ± 198.0 (660 – 1310, *n* = 14),	Ventrals: 245–267 Subcaudals: 47–52	Terrestrial (0)
Leiopython albertisi	1419.4 ± 307.8 (1115 – 2112, *n* = 11)	Ventrals: 260–290 Subcaudals: 60–80	Terrestrial (0)
Liasis fuscus	1362.2 ± 222.4 (953 – 2200, *n* = 61)	Ventrals: 271–286	Terrestrial

		Subcaudals: 72–89	(0)
L. olivaceus	1942.7 ± 392.1 (1100 – 2600, *n* = 59)	Ventrals: 321–411 Subcaudals: 96–119	Terrestrial (0)
Morelia kinghorni	1929.1 ± 537.5 (1290 – 3450, *n* = 32)	Ventrals: 270–348 Subcaudals: 80–120	Arboreal (0)
M. viridis	1144.3 ± 231.4 (840 – 1600, *n* = 17)	Ventrals: 255–260 Subcaudals: 90–110	Arboreal (0)
M. spilota spilota	1606.4 ± 315.6 (1000-2220, *n* = 54)	Ventrals: 261–280 Subcaudals: 71–85	Terrestrial (0.160)
M. spilota variegata	1495.8 ± 400.6 (720 – 2450, *n* = 90)	Ventrals: 259–294 Subcaudals: 81–91	Arboreal (0.610)

† Data on SVL refer to one female and three males. Ventral and subcaudal scale counts were obtained from published literature: Stull 1932, Hoge 1953, Boulenger 1961, Barker and Barker 1994, Cogger 2000, Dirksen 2002, Henderson 2002, Passos 2003, Vences and Glaw 2003.

LITERATURE CITED

Barker, D. G., and T. M. Barker. 1994. Pythons of the world. Volume I. Australia. Advanced Vivarium Systems, Mission Viejo, California, USA.

Boulenger, G. A. 1961. Catalogue of the snakes of the British Museum (Natural History). Volume I. British Museum of Natural History, London, UK.

Cogger, H. G. 2000. Reptiles and amphibians of Australia. Reed New Holland, Sydney, Australia.

Dirksen, L. 2002. Anakondas. Monographische revision der gattung *Eunectes* (Wagler, 1830). Natur und Tier-Verlag, Münster.

Henderson, R. W. 2002. Neotropical Treeboas. Natural history of the *Corallus hortulanus* Complex. Krieger Publishing Company, Malabar, Florida, USA.

Hoge, A. R. 1953. A new genus and species of Boinae from Brazil. *Xenoboa cropanii*, gen. nov., sp. nov. Memórias dos Instituto Butanatan **25**:27–34.

Passos, P. G. H. 2003. Sistemática do complexo *E. cenchria* (Linnaeus, 1978) com aproximações sobre filogenia de *Epicrates* Wagler, 1830 (Serpentes: Boidae). MSc thesis. Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil.

Stull, O. 1932. Five new subspecies of the family Boidae. Occasional Papers of the Boston Society of Natural History **8**:25–30.

Vences, M., and F. Glaw. 2003. Phylogeography, systematics and conservation status of boid snakes from Madagascar (*Sanzina* and *Acrantophis*). Salamandra **39**:181–206.

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Appendix B. A table showing midbody circumference and lateral flatness, clutch size, and ovarian position in boid and pythonid snakes.

TABLE B1. Midbody circumference and lateral flatness, clutch size, and ovarian position in boid and pythonid snakes. Mean values are followed by standard deviations. Range and sample sizes are given within parentheses. All measures are expressed as proportions of snout-vent length. Negative measures in ovarian position represent cases where the left and right ovaries overlap to some degree along the mother's body length, whereas positive values refer to cases where the left and right ovaries do not overlap along the mother's body length.

Species	**Midbody circumference**	**Lateral flatness of the body**	**Clutch size**	**Ovarian position**
Boids				
Candoia carinata	0.11 ± 0.02 (0.07 – 0.19, *n* = 136)	0.71 ± 0.12 (0.44 – 1.09, *n* = 131)	15.3 ± 16.2 (4 – 53, *n* = 14)	0.002 ± 0.013 (-0.021 – 0.039, *n* = 54)
Candoia aspera	0.17 ± 0.02 (0.13 – 0.26, *n* = 65)	0.87 ± 0.15 (0.62 – 1.44, *n* = 60)	16.1 ± 10.5 (5 – 48, *n* = 13)	-0.018 ± 0.016 (-0.062 – 0.0, *n* = 19)
Candoia bibroni	0.08 ± 0.01 (0.06 – 0.13, *n* = 49)	0.70 ± 0.12 (0.47 – 1.04, *n* = 48)	13.7 ± 9.6 (8 – 33, *n* = 6)	-0.004 ± 0.006 (-0.009 –0.010, *n* = 8)
Boa constrictor amarali	0.13 ± 0.02 (0.09 – 0.20, *n* = 109)	0.88 ± 0.14 (0.62 – 1.20, *n* = 48)	14.3 ± 2.6 (11 – 16, *n* = 6)	-0.016 ± 0.014 (-0.042 – 0.016, *n* = 11)
Boa constrictor constrictor	0.11 ± 0.02 (0.06 – 0.17, *n* = 110)	0.90 ± 0.11 (0.68 – 1.10, *n* = 44)	27.0 ± 8.1 (19 – 41, *n* = 10)	-0.016 ± 0.014 (-0.042 – 0.021, *n* = 14)
Corallus caninus	0.10 ± 0.02 (0.07 – 0.17, *n* = 35)	0.62 ± 0.09 (0.48 – 0.89, *n* = 34)	8.4 ± 3.9 (3 – 15, *n* = 9)	-0.005 ± 0.009 (-0.018 – 0.013, *n* = 18)

Corallus hortulanus	0.07 ± 0.01 (0.05 – 0.11, *n* = 193)	0.66 ± 0.11 (0.39 – 0.96, *n* = 192)	11.1 ± 4.8 (3 – 24, *n* = 39)	0.004 ± 0.008 (-0.013 – 0.024, *n* = 72)
*Corallus cropanii**	0.10 ± 0.03 (0.09 – 0.14, *n* = 4)	0.80 ± 0.13 (0.65 – 0.88, *n* = 3)	-	-
Epicrates c. cenchria	0.10 ± 0.01 (0.07 – 0.17, *n* = 82)	0.87 ± 0.17 (0.63 – 1.50, *n* = 70)	13.1 ± 4.9 (8 – 25, *n* = 11)	-0.014 ± 0.016 (-0.058 – 0.015, *n* = 21)
Epicrates c. assisi	0.10 ± 0.01 (0.07 – 0.14, *n* = 42)	0.87 ± 0.10 (0.64 – 1.09, *n* = 36)	9.3 ± 2.6 (7- 14, *n* = 6)	-0.003 ± 0.013 (-0.025 – 0.018, *n* = 15)
Epicrates c. crassus	0.11 ± 0.01 (0.09 – 0.14, *n* = 61)	0.89 ± 0.13 (0.63 – 1.21, *n* = 61)	12.5 ± 4.7 (8 – 22, *n* = 9)	-0.013 ± 0.022 (-0.084 – 0.015, *n* = 20)
Sanzinia madagascariensis	0.10 ± 0.01 (0.08 – 0.13, *n* = 18)	0.70 ± 0.09 (0.56 – 0.86, *n* = 15)	-	-0.0002 ± 0.006 (-0.007 – 0.006, *n* = 3)
Eunectes murinus	0.10 ± 0.02 (0.04 – 0.15, *n* = 36)	0.96 ± 0.13 (0.70 – 1.17, *n* =18)	63.7 ± 15.1 (49 – 82, *n* = 4)	-0.036 ± 0.017 (-0.056 – -0.017, *n* = 5)
Eunectes notaeus	0.16 ± 0.01 (0.14 – 0.17, *n* = 10)	-	-	-
Eunectes deschauenseei	0.10 ± 0.01 (0.06 – 0.13, *n* = 22)	0.95 ± 0.10 (0.78 – 1.11, *n* = 14)	10.6 ± 9.6 (3 – 27, *n* = 6)	-0.005 ± 0.004 (-0.008 – 0, *n* = 3)
Pythonids				
Aspidites melanocephalus	0.08 ± 0.01 (0.06 – 0.10, *n* = 37)	0.91 ± 0.14 (0.67 – 1.39, *n* = 37)	7.8 ± 4.1 (3 – 14, *n* = 6)	-0.005 ± 0.012 (-0.027 – 0.016, *n* = 12)
Aspidites ramsayi	0.09 ± 0.01 (0.07 – 0.12, *n* = 26)	0.87 ± 0.10 0.68 – 1.08, *n* = 25)	14.3 ± 2.1 (12 – 16, *n* = 3)	-0.007 ± 0.027 (-0.062 – 0.022, *n* = 7)
Antaresia childreni	0.09 ± 0.01 (0.08 – 0.11, *n* = 36)	0.92 ± 0.13 (0.71 – 1.25, *n* = 35)	6.5 ± 4.0 (3 – 12, *n* = 4)	0.003 ± 0.018 (-0.026 – 0.029, *n* = 15)
Antaresia stimsoni	0.10 ± 0.01 (0.07 – 0.13, *n* = 31)	0.97 ± 0.14 (0.73 – 0.13, *n* = 30)	-	-0.014 + 0.014 (-0.039 – 0, *n* = 8)
Antaresia maculosa	0.09 ± 0.02 (0.06 – 0.13, *n* = 21)	0.90 ± 0.12 (0.57 – 1.06, *n* = 21)	12.6 ± 4.6 (8 –19, *n* = 6)	-0.002 ± 0.017 (-0.028 – 0.023, *n* = 8)

Bothrochilus boa	0.11 ± 0.02 (0.08 – 0.17, *n* = 14)	0.81 ± 0.13 (0.54 – 0.99, *n* = 13)	-	-0.013 (-0.010 – -0.015, *n* = 2)
Leiopython albertisi	0.16 ± 0.02 (0.14 – 0.20, *n* = 10)	0.33 ± 0.02 (0.30 – 0.37, *n* = 9)	-	-0.003 ± 0.017 (-0.027 – 0.014, *n* = 4)
Liasis fuscus	0.10 ± 0.02 (0.07 – 0.15, *n* = 39)	0.91 ± 0.11 (0.69 – 1.18, *n* = 35)	10.3 ± 6.9 (3 – 24, *n* = 10)	-0.015 ± 0.021 (-0.048 – 0.035, *n* = 18)
L. olivaceus	0.08 ± 0.02 (0.06 – 0.11, *n* = 26)	0.91 ± 0.11 (0.72 – 1.18, *n* = 26)	15.9 ± 7.9 (8 – 30, *n* = 6)	-0.009 ± 0.01 (-0.026 – 0.010, *n* = 14)
Morelia kinghorni	0.07 ± 0.02 (0.06 – 0.11, *n* = 29)	0.68 ± 0.08 (0.53 – 0.80, *n* = 26)	11.5 ± 0.8 (11 – 12, *n* = 2)	0.008 ± 0.007 (-0.003 – 0.018, *n* = 9)
M. viridis	0.11 ± 0.03 (0.07 – 0.17, *n* = 11)	0.67 ± 0.12 (0.45 – 0.81, *n* = 11)	12.6 ± 5.3 (6 – 19, *n* = 4)	-
M. spilota spilota	0.09 ± 0.02 (0.06 – 0.16, *n* = 38)	0.78 ± 0.11 (0.52 – 0.96, *n* = 36)	24.0 ± 4.7 (16 – 28, *n* = 4)	-0.018 ± 0.016 (-0.004 – 0, *n* = 7)
M. spilota. variegata	0.09 ± 0.02 (0.07 – 0.13, *n* = 35)	0.79 ± 0.16 (0.47 – 1.20, *n* = 32)	16.2 ± 12.9 (6 – 38, *n* = 5)	-0.009 ± 0.015 (-0.038 – 0.011, *n* = 11)

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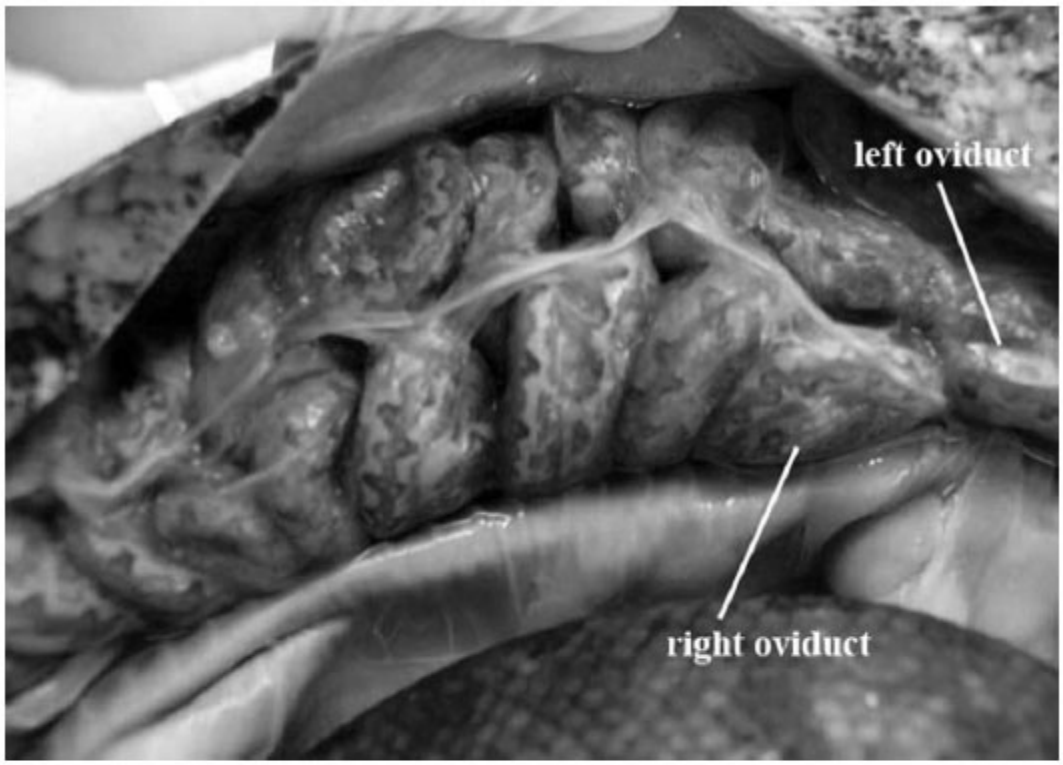
Appendix C. A figure showing late-stage embryos within a gravid terrestrial boid snake and early-stage embryos within a gravid arboreal boid snake.



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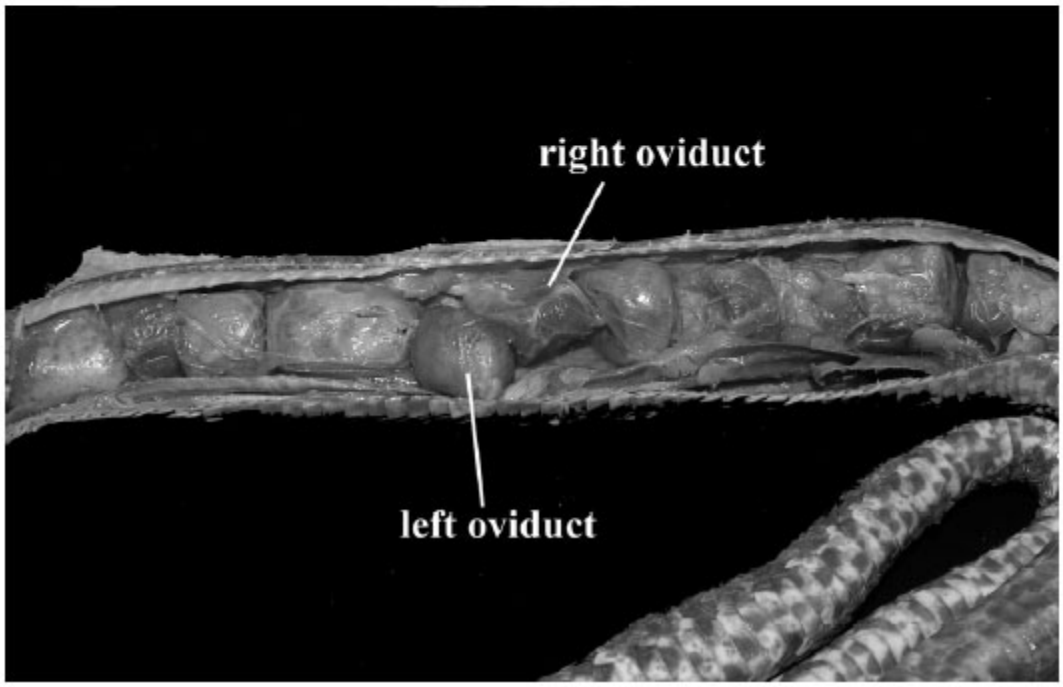

2

FIG. C1. Upper: Late-stage embryos within a gravid terrestrial boid snake (*Candoia carinata;* Australian Museum # R137248), showing the linear arrangement of embryos and the overlap between left-hand-side and right-hand-side oviducts, with consequent distension of the maternal body. Lower: Early-stage embryos within a gravid arboreal boid snake (*Corallus hortulanus;* Instituto Butantan # IB44231), showing the linear arrangement of embryos and the very small overlap between left-hand-side and right-hand-side oviducts, with consequent small distension of the maternal body.