

## LIVE-BEARING IN THE SNAKE *STENOPHIS CITRINUS* FROM MADAGASCAR

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The genus *Stenophis* Boulenger, 1896 currently contains 15 species of Malagasy boigine (opisthoglyphe) snakes which previously were included in the genus *Lycodryas*. Domergue (1995) resurrected the generic name *Stenophis* for the Malagasy taxa and described eight new species (*S. capuroni*, *S. carleti*, *S. citrinus*, *S. iarakaensis*, *S. inopinae*, *S. jaosoloa*, *S. pseudogranuliceps*, *S. tulearenensis*), but unfortunately presented only an extremely abbreviated paper without detailed species diagnoses and without justification of the generic resurrection. We here continue using the name *Stenophis* expecting that the data on which this resurrection is based will still be published. Domergue (1995) also proposed the division of *Stenophis* into three subgenera: *Stenophis* Boulenger, 1896, *Phisalixella* Domergue, 1995 and *Parastenophis* Domergue, 1995.

*Stenophis* are slender arboreal and nocturnal colubrid snakes (Domergue 1995) with a special pupil shape (Cadle 1996). One of the recently described species, *Stenophis citrinus* Domergue, 1995 is a remarkably colourful snake, with a bright yellow dorsal and ventral colour and black crossbands. Only four specimens of the snake have been described so far in the literature: The holotype from Analabe-Beroboka (MNHN 1978:2790; Domergue 1995), one specimen from the Kirindy forest (ZFMK 59794; Glaw and Vences 1996a), and two specimens from Antsingy (MRSN R15631-2; Schimmenti and Jesu 1997). All these localities are located in arid western Madagascar.

Recently, several live specimens of *Stenophis citrinus* were exported from Madagascar. One female of approximately 50 cm total length was imported to the USA during November 1997. As reported by the keepers of the specimens to W.B. Love, this female, and all of the other imported specimens, refused to feed on newborn mice or *Anolis* lizards in captivity. In late December 1997 the keeper of the female snake noted a swelling of the midbody. Shortly later the specimen gave birth to two well developed juveniles. The neonates (fig. 1; photographed within two days after their birth) were much more slender than the adult female, measuring about 18-20 cm. They showed a similar colour pattern as the adults, but the dorsal colour was light brown instead of yellow, and the ventral colour light beige with pinkish shade. It cannot be excluded that this duller colouration was partly due to them approaching a shed soon, as the dullness had a "milky" look which other snakes typically show prior to moulting.

So far, reproductive data are only known for two *Stenophis* species. Mertens (1955) obtained young from a female of *Stenophis pseudogranuliceps* (as *Lycodryas granuliceps*), and Domergue (pers. comm.) observed in the same species that four young were born at the end of January by a female. The same author (pers. comm.) reported that a dissected female of *Stenophis carleti* contained 4 eggs of 43 x 8 mm. *S. pseudogranuliceps*, *S. carleti*, and *S. citrinus* have 17 dorsals and at least some divided subcaudals and therefore belong to the subgenus *Stenophis* sensu Domergue (1995).



Plate 1: Female of *Stenophis citrinus* with two neonates, photographed within two days after birth of the juveniles). Photo by W.B. Love

*S. carleti* occurs in humid south-eastern Madagascar, whereas *S. pseudogranuliceps* and *S. citrinus* inhabit arid western Madagascar. The fact that both latter species give birth to juveniles may indicate that they are closely related.

The period of birth of the juveniles in *S. citrinus* (late December) corresponds with the peak of the rainy season in Madagascar, and is in accordance with the pattern observed in most other Madagascan reptiles which mainly reproduce during the rainy season (Glaw and Vences 1996a).

## REFERENCES

- Cadle, J. (1996). Systematics of snakes of the genus *Geodipsas* (Colubridae) from Madagascar, with descriptions of new species and observations on natural history. *Bull. Mus. Comp. Zool.* **155** (2): 33-87.
- Domergue, C.A. (1995 "1994"). Serpents de Madagascar: note liminaire sur des especes nouvelles du genre *Stenophis* Boulenger, 1896 (Colubridae-Boiginae). *Arch. Inst. Pasteur, Madagascar*, **61** (2): 121-122.
- Glaw, F. and Vences, M. (1996a). Bemerkungen zur Fortpflanzung des Waldskinks *Amphiglossus melanopleura* (Sauria: Scincidae) aus Madagaskar, mit einer Übersicht über die Fortpflanzungsperioden madagassischer Reptilien. *Salamandra* **32** (3): 211-216.
- Glaw, F. and Vences, M. (1966b). Seltene Schlangen aus Madagaskar. *TI-Magazin* **132**: 41-45.
- Mertens, R. (1955). Studien über die Reptilienfauna Madagaskars. I. Beobachtungen an einigen madagassischen Reptilien im Leben. *Zool. Garten* **22**: 57-73.
- Schimmenti, G. and Jesu, R. (1997). Some significant reptile discoveries from the Antsingy forest ("Tsingy de Bemaraha" massif, Western Madagascar), pp. 317-329. In: Böhme, W., W. Bischoff & T. Ziegler (eds): *Herpetologia Bonnensis*, Bonn (SEH), 416 pp.