

COLOUR CHANGE IN *LEPTOTYPHLOPS SCUTIFRONS* (PETERS) AND NOTES ON ITS DEFENSIVE BEHAVIOUR

JOHN VISSER

c/o Zoology Department, University of Stellenbosch.

Two live *Leptotyphlops scutifrons*, collected at Serowe, recently reached me packed in a tin which contained damp earth. The specimens were uniformly black (phase A, fig. 1), remaining this colour for a week while housed in a jar that had been filled with moist moss. Within minutes of taking the specimens out of this jar and allowing them unrestricted movement in an area illuminated for photography, their colour changed to basically silver (phase B, fig. 1). Phase A colouration was reverted to when the specimens were returned to the moss-filled jar. Both dorsal and ventral surfaces were affected by the colour change. The colour of *scutifrons* has previously been reported as "uniformly black" (Wilson 1965), "reddish to dark brown or black above, and usually somewhat paler below, with scales often paler-edged" (FitzSimons 1962) and as "silver-grey to black" (Broadley 1959). No reference to the colour change phenomenon described here for *scutifrons* is made in FitzSimons' comprehensive review (1962) of the southern African *Leptotyphlopidae*.

My original assumption that concentration and dispersion of pigment causes the change of colour was disproved by following up a suggestion made by Mr. W. Haacke of the Transvaal Museum. Immersion in water of phase B specimens results in phase A colouration and the reverse happens when wet specimens are allowed to dry. Change of colour is independent of water temperature and affects only those areas with which the water makes direct contact. As no specific behavioural response has been seen to cause colour change, the mechanism involved in it would seem to be physical.

Since making the original observations on *scutifrons*, I have also kept *L. nigricans* from Cape Town and Port Alfred and *L. occidentalis* from Mariental district under observation. No change of colour could be induced in these. As the optical effect which accounts for the change of pattern in *scutifrons* is apparently associated with both greater transparency of the marginal areas of the body scales and of their freer overlap, absence of the phenomenon in *nigricans* may be due either to opacity or to the "close-fitting" nature (FitzSimons 1962) of its scales.

A hitherto unreported feature of the defensive behaviour of *L. scutifrons* is death "shamming" or feigning. This behaviour, characterised by the snake becoming quite limp and unresponsive to handling, prodding, etc., is elicited by "saturating" with tactile stimuli. A behavioural response of lower intensity is the violent wriggling seen when these snakes are first unearthed. Both FitzSimons (1962) and Rose (1955, 1962) misinterpret the violent wriggling as due to an inability of the species to progress on the surface of the ground. Above ground progression of all three species mentioned in this note was typically sinusoidal when the specimens were not exposed to stress. Also, Broadley (1959) has found *scutifrons* "wandering about on the surface during the rains".

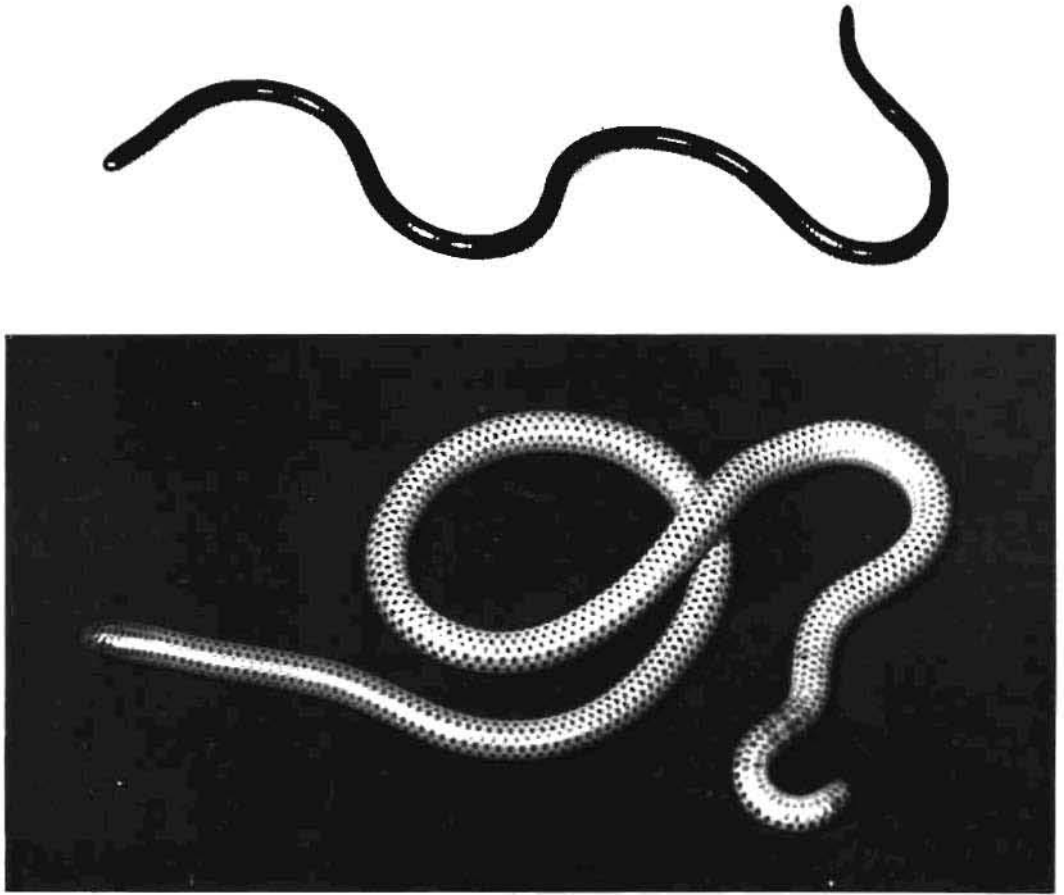


Figure 1. The two colour phases of *Leptotyphlops scutifrons*. Above: Phase A, uniformly black. Below: Same specimen phase B, basically silver.

ACKNOWLEDGEMENTS

I owe Mr. Tys van Tonder of Pretoria my thanks for gifts of *L. scutifrons* from Serowe and Pretoria. Assistance from Mr. Wulf Haacke and Dr. V. F. M. FitzSimons, both of the Transvaal Museum, is gratefully acknowledged.

REFERENCES

- BROADLEY, D. G. 1959. The Herpetology of Southern Rhodesia, Part I—Snakes. *Bull. Mus. Comp. Zool.* 120: 1–100.
- FITZSIMONS, V. F. M. 1962. *Snakes of Southern Africa*. Cape Town and Johannesburg: Purnell and Sons.
- ROSE, W. 1955. *Snakes, Mainly South African*. Cape Town: Maskew Miller.
- ROSE, W. 1962. *The Reptiles and Amphibians of Southern Africa*. Cape Town: Maskew Miller.
- WILSON, V. J. 1965. The Snakes of the Eastern Province of Zambia. *The Puku, Occ. Papers Dept. Game and Fisheries, Zambia*. No. 3: 149–170.