LIFE HISTORY NOTES ON LOVERIDGE’S LIMBLESS SKINK

*MELANOSEPS LOVERIDGEI* BRYGGO & ROUX-ESTÈVE, 1981

(SAURIA: SCINCIDAE: FEYLININAE)

PATRICK K. MALONZA1,2 AND BERYL A. BWONG1

1 Section of Herpetology, National Museums of Kenya, P. O. Box 40658-00100, Nairobi, Kenya.

Abstract: Burrowing limbless and slender skinks of the genus *Melanoseps* have been assumed to be oviparous. Our field observations, however, indicate *Melanoseps loveridgei* from Kitobo forest is viviparous and has a litter size of three young.

Key Words: Lizard, *Melanoseps pygmaeus*, viviparity, breeding, Reptilia, Kitobo forest, Kenya, Africa.


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INTRODUCTION

*Melanoseps* Boulenger, 1887 is an African genus of small and slender, shiny-bodied limbless skinks (see Spawls et al. 2002). Because of their burrowing habits, they are often overlooked and consequently their life style is virtually unknown and causes them to be regarded as rare where they occur. Six species are known from Eastern Africa with three regarded as endemic to Tanzania (e.g. Broadley and Howell 1991, Spawls et al. 2002, Broadley et al. 2006). There has been no past record of any *Melanoseps* species in Kenya. However, the first record was made in November 2005 by P.K. Malonza and G.J. Measey, and April 2006 by B.A. Bwong and G.J. Measey in Longo-mwagadi forest, Shimba Hills National Reserve (UTM: 546591; 9531127; altitude 396 m). We have assigned the species to *Melanoseps pygmaeus* Broadley, Whiting & Bauer, 2006. Later, a single specimen assignable to *Melanoseps loveridgei* Brygoo & Roux-Estève, 1981 was collected in Mt. Kasigau forest (UTM: 461005, 9577326; altitude 1095 m), Taita Hills by P.K. Malonza in April 2006, and further specimens of the same species were later collected in Kitobo forest (UTM: 9619706, 346407; altitude 737 m), Taveta in December 2007 and all the individuals accessioned (L/3104/1-14) and stored at National Museums of Kenya (NMK), Nairobi Herpetology collection.

*Melanoseps loveridgei* is a wide-ranging fossorial savanna scincid lizard known from south-eastern Katanga in Democratic Republic of Congo, northern Mozambique, through eastern to northern Tanzania. *M. loveridgei* has been regarded to be polyphyletic and may reflect the presence of cryptic taxa. Its body is generally dark grey to black and of intermediate size in relation to other species (see Broadley et al. 2006). Initially all *Melanoseps* species were presumed to be oviparous (egg layers, see Spawls et al. 2002). However, recent reports from preserved specimens have hinted that some species may be viviparous (e.g., Broadley et al. 2006). We herein briefly provide novel data on the life history (ecological characteristics and breeding habits) of *Melanoseps loveridgei* based on field observations in Kitobo forest.

MATERIALS AND METHODS

Study area

Field observations were done in Kitobo forest, a lowland forest (ca. 750 m a.s.l.) located about 10 km Southeast of Taveta town and Mt. Kilimanjaro in Taita-Taveta district, Kenya, Africa.

Sampling

Field work in the study area lasted five days from 7 to 11 December 2007. During this period the forest soils were relatively dry.

Time limited search (TLS), a form of timed species counts (TSC) similar to those described by Karns (1986) and Sutherland (1996) was used to sample these limbless skinks. TLS were done randomly within the forest for one person hour. Intensive herpetofaunal sampling in all possible microhabitats involved turning over and
digging within leaf litter, debris, decomposing tree stumps and logs using a jembe (metallic hoe) fixed on a long wooden handle. Voucher specimens were fixed in 10% formalin after being euthanized, while tissue samples were stored in absolute ethanol for future genetic analysis. Voucher specimens collected are deposited at National Museums of Kenya (NMK), Nairobi herpetological collection. GPS data were taken using a 12 channel Garmin® receiver.

RESULTS
Ecological characteristics
In Kitobo forest, Melanoseps loveridgei was mainly found within decomposing logs, leaf litter and forest debris on loose soil. Within these microhabitats the species could only be detected through active digging and turning of debris. Otherwise, no individuals were found on the forest surface. Whenever uncovered, individuals immediately burrowed themselves inside the debris or soil making them hard to capture. The species was recorded on seven (58%) out of 12 TLS samples. In total, 14 individuals (juveniles and adults) were recorded making M. loveridgei the most abundant herp species detected in the forest during this period. Measurements of the preserved specimens (snout-vent- length and tail length are given in Table 1. In many cases, more than one individual was found in a single micro-habitat. Sundevall’s writhing skink Lygosoma sundevalli (A. Smith, 1849), Peter’s black Worm snake Leptotyphlops scutifrons merkeri (Werner, 1909) and Cape wolf snake Lycophidion capense (A. Smith, 1831) were found syntopically with M. loveridgei.

Reproductive biology
A gravid female (NMK-L/3104/1), total length 152 mm, was unearthed under decomposing log at around midday of 6th December, 2007. While being handled, it gave birth to a single young (L/3104/2) on PKM’s hands (Fig. 1). At the same site, a recently born juvenile (L/3104/3), total length 74 mm, presumably from the same female, was collected as well. From these results it is shown that a recently born juvenile is about half (74:152) the size of an adult female. Later at the campsite, the same female gave birth to another young while being euthanized. Furthermore, in the lab, three fetuses were removed by dissection from the womb of another female (L/3104/9).

DISCUSSION AND CONCLUSIONS
From our observations we conclude that Melanoseps loveridgei prefers decomposing logs and debris as habitats and shelters. It is not necessarily solitary, as we always found more than one individual within one site. Elsewhere in Kenya, these kind of microhabitats also harbor other subterranean herpetofauna such as caecilian amphibians (see Malonza and Measey 2005, Malonza 2008) and reptiles such as blind snakes, worm snakes, burrowing skinks and worm lizards (Spawls et al. 2002). Their subterranean behaviour has given the impression that they are rare even in areas where they are locally abundant. This notion has also been the case for fossorial caecilians (Measey 2004). This is because they can only be sampled and quantified through active digging within their preferred microhabitats.

Melanoseps loveridgei is a live bearing scincid lizard having a litter size of three young. However, it is possible that the litter size exceeds the one currently observed. Our findings conflict with earlier presumptions that certain members of Melanoseps are oviparous (e.g. Spawls et al. 2002). Presumably all Melanoseps species are viviparous. Our hypothesis would agree with Broadley et al. (2006) who recorded embryos or eggs containing advanced embryos in preserved specimens of Melanoseps ater (Günther, 1873), M. loveridgei, and M. pygmaeus.

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<th>NMK number</th>
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REFERENCES


