

Notes on the reproductive mode of *Melanoseps emmrichi* Broadley 2006

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Abstract. We confirm a previously assumed viviparous mode of reproduction in *Melanoseps emmrichi*, based on a specimen originating from Tanzania which gave birth to three juveniles. Observations during captivity revealed that the species is predominantly diurnal but also exhibits nocturnal locomotory activity.

Herein we provide new information on the natural history of *Melanoseps emmrichi*. The natural history of East African scincid lizards of the genus *Melanoseps* is poorly known (Spawls et al., 2002). After the last revision by Broadley et al. (2006) the species of the genus distributed in East Africa are *M. ater* (Günther 1873), *M. emmrichi* Broadley 2006, *M. loveridgei* Brygoo & Roux-Estève 1981, *M. pygmaeus* Broadley 2006, *M. rondoensis* Loveridge 1942, and *M. uzungwensis* Loveridge 1942. Diagnostic characters separating *M. emmrichi* from all other East African members of the genus include: lack of nasal or postnasal, nostril and supranasal both in contact with the first labial, midbody scale rows 24-26, and subcaudals 36-45 (Broadley et al., 2006). Specimens referred to herein were collected in Tanzania and exported to Germany for the pet trade. We were not able to trace back the exact origin of the specimens, but two species with relatively restricted ranges were exported together with the specimens. These were *Afrixalus uluguruensis* (Barbour & Loveridge 1928), known from the Usambara, Nguu, Uluguru and Udzungwa Mountains, Tanzania and *Leptopelis uluguruensis* Barbour & Loveridge 1928, distributed within the East Usambara, Nguu, Nguru, Uluguru, and Udzungwa Mountains (IUCN et al., 2006). Since the type locality of *M. emmrichi* is situated in the Uluguru Mountains (06° 54' S; 37° 40' E; Broadley et al., 2006), these mountains appear to be the most likely origin. Voucher specimens were housed in the ZFMK

collection preserved in 70% ethanol (Tab. 1). In Germany, the specimens were kept in a terrarium filled to a height of 10 cm with humid coconut humus. Our observations revealed that the species shows its highest activity level during the daylight phase, but also has nocturnal movements. In captivity, it feeds on small (< 3 mm) insects such as fruit flies and micro-crickets. Within three weeks after arrival, one specimen gave birth to three juveniles (Fig. 1). No eggs were detected during daily inspections, confirming a viviparous reproductive mode as suggested, but not confirmed, for the genus by previous authors (see below). Information on the reproduction of members of the genus *Melanoseps* is sparse. Greer (1970) noted that *M. ater misukuensis* might be live bearing and that six gravid females had 2 to 4 (average = 3.0) developing eggs in a clutch. Loveridge (1953) reported that gravid females of *M. ater misukuensis*, taken from mid-September to mid-October in northern Malawi, contained eggs and tiny embryos (*M. ater misukuensis* was treated as synonym of *M. ater* by Broadley et al., 2006). In *M. rondoensis*, a large female collected in mid-May contained two eggs, about 4 mm in diameter (Loveridge, 1942), and in *M. pygmaeus*, the holotype collected in the Kambai Forest Reserve, Tanzania on

Table 1. Voucher numbers, sex and morphometric measurements (in mm) of five *Melanoseps emmrichi*.

ZFMK number	Snout-Vent Length	Tail Length	Sex
87267	150	45	adult male
87268	150	33	adult female
87269	136	regenerated	adult female
87270	47	12	juvenile
87271	51	regenerated	juvenile

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20 February 1996 contained two eggs, with fair-sized embryos (Broadley *et al.*, 2006). For *M. loveridgei*, Loveridge (1923) mentioned a female (referred to as *M. atra longicaudata*, MCZ 18356) collected on August 24th 1921 in Mkata, which contained two eggs measuring 9 x 4 mm. A specimen collected at Liwale on April 10th contained a small, but developing ova and another specimen (MCZ 52487) contained six eggs, each about 4 mm in diameter (Loveridge, 1955). Branch *et al.* (2005)

mentioned two gravid *Melanoseps* sp. collected in the Niassa Game Reserve in northern Mozambique. The taxonomic status of this form is unclear but it may be tentatively referred to *M. loveridgei* (Branch *et al.*, 2005, Broadley *et al.*, 2006). Of them, one female (SVL 142 mm) contained eight eggs (five in the right oviduct and three in the left), and the other (SVL 125 mm) contained three eggs (two right, one left). The authors pointed out that all eggs contained developing embryos on the upper



Figure 1. Juveniles of *Melanoseps emmrichi*. Scale bare 5 mm.

surfaces and concluded that the species is probably viviparous. In Niassa, birth of *Melanoseps* sp. appeared to occur after the start of the summer rains between December and January (Branch et al., 2005). Broadley et al. (2006) mentioned that a specimen from Mbala in Zambia (NMZB-UM 5063) contained two full term embryos (SVL approx. 55 mm) on 15th November 1961. Our specimens were collected between November and December 2007 and birth occurred in the first half of December, confirming a viviparous reproduction mode and the breeding season suggested by Branch et al. (2005). Our juveniles were slightly smaller than the embryos mentioned by Broadley et al. (2006). The relative large size of the juveniles, compared to the adults, suggests a remarkably high energy investment by females.

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