

# New herpetological records of *Hyperolius pusillus*, *Psammophis pulcher*, *Malacochersus tornieri* and *Myriopholis macrorhyncha* from three different areas in Kenya

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## INTRODUCTION

Kenya is home to a wide variety of herpetofauna, currently harbouring about 110 species of amphibians and 290 species of reptiles (Amphibiaweb, 2023; Malonza & Bwong, 2023; Uetz et al., 2023). Kenyan herpetology has a long history and began receiving attention when Arthur Loveridge became the curator of the Nairobi museum in 1914 (e.g. Loveridge, 1924). Also in more recent decades, the country's herpetofauna has been the subject of considerable research attention which has resulted in the publication of field guides and checklists that provide a clearer understanding of the ecology and distribution of Kenyan species (e.g. Spawls, 1978; Channing & Howell, 2006; Spawls et al., 2018). Nevertheless, it is likely that many new reptile and amphibian populations are yet to be recorded, as are new insights in the role of these species in the specific ecosystems that they inhabit. In this contribution, we share new records regarding range extensions and specific behavioural aspects of four reptile and amphibian species that to the best of our knowledge have either not been documented before or deserve further elaboration.

Between 22 April and 7 May 2023, we undertook a field trip to Kenya, to observe and photograph specific species of reptiles and amphibians in their natural habitats. We visited two areas bordering Tsavo National Park and the vicinity of Lake Baringo. Records were collected during both diurnal and nocturnal visual encounter surveys. To assess whether our records represent distributional range extensions or rarely observed and/or undescribed behaviour, we consulted online repositories of museum collections (CAS Herpetology; Natural History Museum, London; Kenya Virtual Museum Records; Collection Herpetologie-SNSD; Steinhardt Museum of Natural History; ZFMK Herpetology collection; MVZ Herp Collection; Natural History Museum, Rotterdam; University of Florida Herpetology; Amphibians and Reptiles collection at the Natural History Museum of Denmark; Naturalis Biodiversity Centre; NMNH Extant Specimen Records; Museum of Comparative

Biology, Harvard; Vertebrate Zoology Division – Herpetology, Yale Peabody Museum; MNHN – Paris; Field Museum of Natural History, Amphibian and Reptile Collection; Collection Herpetology SMF; Herp Specimens; AMNH Herpetology Collection) using the Global Biodiversity Information Facility and checked the relevant literature. Furthermore, we checked online citizen science repositories (i.e. [www.inaturalist.org](http://www.inaturalist.org); [www.observation.org](http://www.observation.org)).

The records presented below comprise range extensions for *Psammophis pulcher* Boulenger, 1895 and *Myriopholis macrorhyncha* (Jan, 1860) and behavioural observations regarding *Malacochersus tornieri* (Siebenrock, 1903) and *Hyperolius pusillus* (Cope, 1862). A full list of herpetological records collected during the surveys as well as more photographs can be found at [www.herpsafari.nl](http://www.herpsafari.nl). Specific details, e.g. locations, are available upon request.

## SPECIES ACCOUNTS

### Water lily reed frog - *Hyperolius pusillus* (Cope, 1862) Records collected (n = ~100)

Taita Taveta County, edge of Tsavo National Park, at one particular location in and around an artificial water basin; 3.78609° S, 38.87059° E; altitude 455 m; recorded on 1 and 2 August 2023, after sunset; no specimens collected.

### Comments

A large number of adults, some in amplexus and with clutches of eggs, were found mostly inside the basin. The English name is derived from the fact that this species is commonly found on floating vegetation, such as water lilies (Channing & Rödel, 2019; Malonza & Bwong, 2023). In this case, most individuals were found sitting on water lettuce (*Pistia stratiotes*), which covered the majority of the water surface. We here record a case of predation of a specimen of *H. pusillus* by a spider of the family Pisauridae. The spider is presumed to belong to the genus *Nilus*, but given the poorly resolved taxonomy of this



**Figure 1.** A specimen of *Hyperolius pusillus* (red arrow) predated by a pisaurid spider at a location on the edge of Tsavo NP

family in Africa, the exact identity is currently uncertain. We observed these spiders actively hunting for prey until one specimen caught an *H. pusillus* and started feeding on it (Fig. 1). This situation was observed for approximately one hour. By then, the frog was still alive, but body tissue around the area of the bite had become fluid. Predation of *Hyperolius* frogs and other frog species in the afrotropics by spiders has been reviewed by Babangenge et al. (2019). They mention that call sites favoured by *H. pusillus* make it particularly vulnerable to predation by pisaurid spiders (Minter et al., 2004), but until now no well-described cases of predation on *H. pusillus* have been published. Sympatric species of reptiles and amphibians that we recorded include *Afrixalus delicatus* Pickersgale, 1984, *Kassina somalica* Scortecci, 1932, *Naja pallida* Boulenger, 1896, *Pelomedusa* cf. *neumanni* Petzold et al., 2014 and *Ptychadena mossambica* (Peters, 1854).

**Beautiful sand snake - *Psammophis pulcher* Boulenger, 1895**  
**Records collected (n = 1)**

Taita Taveta County, edge of Tsavo National Park, on a location near the village of Maungu; 3.56395° S, 38.75052° E; Altitude 545 m; recorded on 2 May 2023 at 10.45 h; no specimens collected.

**Comments**

A single adult female was found crawling through dead grass at a location with open woodland. While being handled, it bit

two of the authors, which did not result in any symptoms. It was identified based on the following characteristics (Boulenger, 1895; Spawls et al, 2018; Malonza & Bwong, 2023); snout rounded; a long tail that is 36–39% of the total length; pale brownish above, with a fine black-edged brown vertebral line; a black dorsolateral stripe running along the second row of scales and extending to the end of the snout after passing through the eye; underside including the lips cream white; 13 mid-body scale rows; 4<sup>th</sup> and 5<sup>th</sup> upper labials touching the eye (Fig. 2). *Psammophis pulcher* is believed to be one of East Africa's rarest snake species, with only very few observations to date (Drewes & Spawls, 1973; Spawls et al, 2018). It was described in 1895 based on a single specimen from the Webbe Shibeli river, Ethiopia (Boulenger, 1895). No more observations were made until 1961, when a second specimen was found at Voi in Tsavo NP, the first record for Kenya. A third and fourth specimen were found in 1972 in eastern Kenya (Ngomeni) and 'Somaliland' (without further data). More recently, seven or eight specimens were found between 2012–2014 at Bisanadi NR close to Meru National Park (Sean Flatt & Mark Flatt, pers. comm.). Hence, this species is known from about a dozen traceable records. Based on the currently known records (Fig. 5), *P. pulcher* is an inhabitant of dry savanna at low altitude. Despite its rarity, it could be quite widespread in eastern Kenya. New records can result in a better understanding and prediction of its actual distribution throughout the country, therefore underlining the importance of recording such observations. The record presented here is the second record for the area of Tsavo NP, extending the distribution approximately 25 km south-east in a straight line from the closest known locality at Voi, which was recorded in 1961. Sympatric species of reptiles and amphibians that we recorded include *Agama lionotus* Boulenger, 1896, *Dendroaspis polylepis* Günther, 1864, *Dispholidus typus* (Smith, 1828) and *Trachylepis quinquetaeniata* (Lichtenstein, 1823).

**Pancake tortoise - *Malacochersus tornieri* (Siebenrock, 1903)**

**Records collected (n = 7)**

Kitui County, south of Mwingi National Reserve; altitude 536 m. Recorded on 29 April–1 May 2023 at various times of the day; we have chosen not to share location details to prevent poaching. Detailed information is available upon reasonable request; no specimens collected.



**Figure 2.** A specimen of *Psammophis pulcher* from a location at the edge of Tsavo NP



**Figure 3.** An adult (red arrow) and a subadult (blue arrow) *Malacochersus tornieri* sharing their shelter with a subadult *Bitis arietans* (white arrow)

**Comments**

All the specimens we found were observed hiding in rock crevices. We here discuss one specific record of two *M. tornieri*, an adult and a subadult, sharing the same rock crevice with a subadult puff adder, *Bitis arietans* Merrem, 1820. The rock crevice was situated about 50 cm above ground level. At the same boulder formation, an adult *B. arietans* was found. Both tortoises and the subadult *B. arietans* were found undisturbed and hiding right next to each other – one of the tortoises touching the *B. arietans* - in the same part of the crevice (Fig. 3). The sharing of rock crevices by these two species has been documented before (Malonza, 2003). However, to the best of our knowledge this is the first record that includes a subadult *M. tornieri*. We deem this noteworthy because *B. arietans* is known to feed on tortoises (e.g. Spawls et al., 2018), and in this case would be able to swallow the subadult *M. tornieri*. Therefore, this observation concerns predator and potential prey sharing the same shelter. Sympatric species of reptiles and amphibians that we recorded include *Chamaeleo gracilis* Hallowell, 1844, *Eryx colubrinus* (Linnaeus, 1758), *Heliobolus spekii* (Günther, 1872), *Hemidactylus mabouia* (Moreau de Jonnés, 1818), *Hemidactylus platycephalus* Peters, 1854, *Hemidactylus squamulatus* Tornier, 1896, *Latastia longicaudata* (Reuss, 1834), *Lygodactylus tsavoensis* Malonza, Bauer, Granthon, Williams & Wojnowski, 2019, *Mochlus sundevalli* (Smith, 1849), *Psammophis punctulatus* Duméril, Bibron & Dumeril, 1854, *Trachylepis brevicollis* (Wiegmann,

1837), *Trachylepis margaritifera* (Peters, 1854), *Tomopterna* cf. *tandyi* Channing & Bogart, 1996 and *Varanus albigularis* Daudin, 1802.

**Hook-snouted Worm Snake - *Myriopholis macrorhyncha* (Jan, 1860)**

**Records collected (n = 2)**

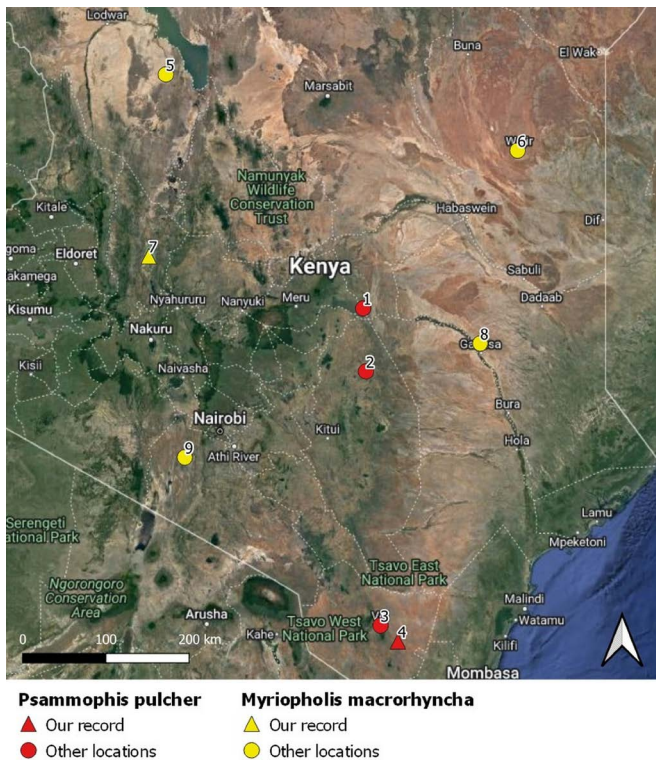
Baringo County, on Teddy Bear Island, which is situated in Lake Baringo; 0.601250° N, 36.054778° E; altitude 997 m; 23 and 24 April 2023, after sunset; no specimens collected.

**Comments**

Both specimens were found out in the open on a woodland trail and tentatively identified as *M. macrorhyncha*. They shared the same characteristics; body cylindrical and thin; head and neck slightly broadened; strongly hooked snout with distinct beak; tail tapering to a small blunt cone; dorsum unpigmented and pink coloured; venter cream coloured (Fig. 4). One specimen was more thoroughly identified based on the following characters: 14 rows of smooth subequal scales, 323 mid-dorsals; 31 subcaudals; total length (119 mm)-tail (10 mm) ratio=11.9; subtriangular cloaca shield; rostral moderate, much wider than nasals dorsally, not reaching level of eyes; large ocular with small eye centrally placed in upper half and moderate posterior supralabial; frontal, supraoculars, and postfrontal subequal, forming a rather floral-like rosette pattern; temporal single (Broadley & van Wallach, 2007).



**Figure 4.** A specimen of *Myriopholis macrorhyncha* from Teddy Bear Island, Lake Baringo



**Figure 5.** Old records of *Psammophis pulcher* and *Myriopholis macrorhyncha* in Kenya (Drewes & Spawls, 1973; Spawls et al., 2018; Malonza & Bwong, 2023), and the new records presented here: 1. Bisanadi NR, 2. Ngomeni, 3. Voi, 4. Maungu, 5. Lake Turkana, 6. Wajir, 7. Lake Baringo, 8. Sankuri and Garissa, 9. Olorgesailie

*Myriopholis macrorhyncha* has a wide distribution in north-east Africa and the Middle East (Uetz et al., 2023). This species is only sporadically recorded from Kenya and appears to have a patchy distribution in this country. It is known from Olorgesailie southwards to the Kilimanjaro and Mt. Meru (Tanzania), the area of Sankuri and Garissa, Wajir and the area of Lake Turkana (Spawls et al., 2018; Malonza & Bwong, 2023). Our records are the first from the Lake Baringo area, and represent a significant extension of the distribution range of this species, with the nearest known localities in the Lake Turkana area approximately 200 km northward (Fig. 5). Sympatric species of reptiles and amphibians that we recorded on Teddy Bear Island include *Crocodylus niloticus* Laurenti, 1768, *Dasypeltis scabra* (Linnaeus, 1758), *Hemidactylus angulatus* Hallowell, 1854, *Lygodactylus manni* Loveridge, 1928, *Naja pallida*, *Phrynobatrachus natalensis* (Smith, 1849), *T. quinquetaeniata* and *Varanus niloticus* (Linnaeus, 1766).

## DISCUSSION

In this short note we have presented geographical range extensions for *P. pulcher* and *M. macrorhyncha*, comments on the ecology of *M. tornieri* and *H. pusillus* and observations of many sympatric species. Apart from South Africa, the herpetofauna of sub-saharan Africa is relatively poorly documented and observations such as these can make a significant contribution to faunal knowledge base, especially of the rarer species such as *P. pulcher*. Such data gathering should continue so that there is sound evidence of the establishment

of conservation priorities and sufficient data to generate researchable hypotheses on the biogeography and ecology of these species.

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