

A Herpetological Reconnaissance of Mpala Research Centre, Laikipia, Kenya

Authors: Miller, Scott E., and Lazell, James D.

Source: Journal of East African Natural History, 90(1) : 103-107

Published By: Nature Kenya/East African Natural History Society

URL: [https://doi.org/10.2982/0012-8317\(2001\)90\[103:AHROMR\]2.0.CO;2](https://doi.org/10.2982/0012-8317(2001)90[103:AHROMR]2.0.CO;2)

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

A HERPETOLOGICAL RECONNAISSANCE OF MPALA RESEARCH CENTRE, LAIKIPIA, KENYA

Scott E. Miller¹

International Centre of Insect Physiology and Ecology (ICIPE)
Box 30772, Nairobi, Kenya

James D. Lazell

The Conservation Agency
6 Swinburne St., Jamestown RI 02835, U.S.A.

ABSTRACT

Reptiles and amphibians are reported from Mpala Research Centre, located in semi-arid savannah on the Laikipia Plateau of central Kenya, at 1650 m elevation at 0.293° N and 36.899° E. An intensive survey was undertaken 5–7 July 1998, supplemented by incidental sampling on other occasions. A total of 17 species are known from Mpala Research Centre: 4 toads and frogs, 1 tortoise, 7 lizards, and 5 snakes.

INTRODUCTION

The Mpala Research Centre (MRC) and the adjacent Mpala Ranch are located in semi-arid savannah on the Laikipia Plateau of central Kenya, west of Mount Kenya. MRC is at 1650 m elevation at 0.293° N and 36.899° E. MRC is a biological field station managed in collaboration with Kenya Wildlife Service, National Museums of Kenya, Princeton University, and the Smithsonian Institution. Young *et al.* (1997) and Keesing (1998, 2000) provide general descriptions of the environment. Annual mean rainfall at MRC is between 550 and 600 mm, but with substantial spatial and temporal heterogeneity.

Although MRC has excellent facilities and is well situated in one of the most biologically interesting regions within Kenya, little biodiversity inventory has been undertaken there. Moreover, the Laikipia area in general has historically been ignored by visiting biological expeditions as well as collecting by Kenya residents, apparently because it is outside of the famous wildlife parks. Steindachner (1891) described several reptiles from "Leikipia" that were collected by Ludwig von Höhnelt when his expedition traversed the Laikipia Plateau in late 1887 (von Höhnelt, 1894). The George Vanderbilt African Expedition of 1934 was briefly in Laikipia in July 1934, fairly near the present site of Mpala (Rehn, 1936), but the herpetological report does not record specimens collected any closer to Mpala than Nanyuki

¹ Current address: National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560-0105, U.S.A., e-mail: miller.scott@nmnh.si.edu

(Loveridge, 1937). The only reptiles or amphibians recorded in the literature from Mpala are two species of snakes (Keesing, 1998).

The present survey was intended as the beginning of a herpetological survey of the Mpala area. One period of intensive sampling was undertaken (5–7 July 1998) followed by incidental herpetological observations during entomological fieldwork. The entomological fieldwork covered 24 nights in 11 sets from May 1998 to December 1999, but increasingly severe drought and logistic constraints prevented further intensive herpetological sampling. In the meantime, MRC visitors have been using our informal report in the absence of anything better. Thus, we offer the following data as starting point and hope that it will encourage others to fill in the many gaps.

A team of five collectors visited MRC 5–7 July 1998 specifically to collect insects, amphibians, and reptiles. The weather was largely overcast during our stay, with brief sunny intervals. The highest temperature recorded was 18° C, midday 7 July. The high for 6 July was 15° C. The lowest temperature we recorded was 12° C at 7 p.m. on 5 July, but overnight lows were certainly below 10° C. Our sampling was limited to the immediate vicinity of MRC, and did not include the adjacent river. We encountered 14 species and collected 28 specimens of 12 of those, as detailed below. The total number of specimens collected is followed by the catalog numbers for specimens deposited in the Smithsonian Institution (USNM) and National Museums of Kenya (NMK).

A total of 17 species are known from MRC and immediate vicinity: 14 species recorded July 1998, one tree frog recorded July 1999, and two snakes recorded by Keesing (1998). The 17 species includes 4 toads and frogs, 1 tortoise, 7 lizards, and 5 snakes. A more intensive survey of the Kora National Reserve, a much lower (270–490 m) and larger area to the east of Mount Kenya, found 44 species including 5 toads and frogs, 4 turtles and tortoises, 19 lizards, 15 snakes, and one crocodile (Cheptumo *et al.*, 1986). Another intensive survey at the Mkomazi Game Reserve in northern Tanzania, also a much larger and more diverse area than MRC, found 65 species including 14 frogs and toads, 3 turtles and tortoises, 32 lizards and 16 snakes (Cherry *et al.*, 1999, Flemming and Bates, 1999).

General information on Kenyan herpetology can be found in Hedges (1983), Marais (1992), Spawls (1978) and Spawls and Rotich (1999).

RESULTS

Amphibia: Anura

Bufo garmani Meek (1 USNM 533124, 1 NMK A/3557). Common large toads, basically gray with brown markings. There may be rust reddish in the dorsal markings and on the backs of the thighs.

Kassina senegalensis (Dumeril & Bibron) (1 NMK A/3597). A pretty, boldly spotted, small frog, called "running frog" by Hedges (1983), who provides a good colour photo mislabeled (figure 101). The ground colour is olive-tan; the large spots are chocolate to gray-brown.

Tomopterna cryptotis (Boulenger) (1 NMK A/3586). Looks like an earless toad, olive and gray with a pink stripe and yellow marbling on the abdomen and thighs in life: subtly colourful.

Hyperolius viridiflavus pantherinus (Steindachner) (1 NMK A/3680). Collected in the black cotton soil area on *Acacia drepanolobium* after rain, 18 July 1999, by Tina Kuklenski and Scott Miller. Schiøtz (1999) discusses the difficult nature of taxa within this complex.

Reptila: Testudines

Geochelone pardalis (Bell) (none collected). Common. We encountered a large female walking along at 4 p.m., 6 July 1998, during a brief sunny interval, temperature only about 15° C. Both live individuals and dead shells seen on many other occasions.

Reptila: Squamata

Hemidactylus brookii (Gray) (8 USNM 533129-36, 1 NMK L/2282). This immigrant exotic species is rapidly becoming the standard edificarian gecko of Kenya and is the most conspicuous and apparently abundant reptile at Mpala. They were easily collected around lights on buildings even past 10 p.m. when temperatures could not have exceeded 10° C. As an index to its invasive spread, it is not mentioned by Hedges (1983), although it was found at Kora in the early 1980s (Cheptumo *et al.*, 1986).

Lygodactylus picturatus Peters (2 USNM 533137-38). This pretty little gecko was diurnal during our stay; it is crepuscular to nocturnal at Nguruman, 600 m, in southern Kenya. A brightly coloured individual will have sooty head stripes on lemon yellow, bluish legs and tail, and a bright yellow mid-venter set off laterally with white. Many are more subdued shades of ash to charcoal grey with yellowish and bluish tints.

Mabuya varia (Peters) (2 USNM 533139-40, 1 NMK L/2253). A common, typical skink: brown with near-black lateral stripes, set off with near-white ventrolaterally. At this elevation, it would be an excellent candidate for life-history studies.

Black scincoid (none collected). We observed three large—to half a meter—black skink-like lizards in the stone walls when it warmed up on 7 July. They might be easy to capture with double funnel traps placed among the stones.

Agama agama Linnaeus (4 USNM 533125-28). Our male had orange-red shoulders, a purplish head with brick-red suffusions, and a dark red throat. His body was slate-green with lots of scattered sky-blue scales, especially posterodistally. Females and young were olive with some yellow on their throats. Active during the fleeting sunny periods; obviously abundant.

Nucras sp. cf. *boulengeri* (1 NMK L/2279). This lovely little lizard could not be identified with certainty. It was found under a rock at 5 p.m., 6 July by W. Lu. We would expect it to be a fast-moving heliophile in habitats 15° C warmer than ambient at Mpala (e.g., 30° C). In life, the legs and proximal tail were orange-pink; the tail became bright orange-red distally. The bold facial pattern was cream-yellow on gray-brown. There were ochre-yellow lateral dots on this ground on the body, and a rusty-pink zone along the sides of the off-white venter. There was a middorsal stripe of bright golden-yellow, flanked by fawn-brown, black-edged stripes. There were duller golden dorsolateral stripes.

Chameleo bitaeniatus (Fischer) (1 NMK L/2257). An apparent juvenile, ca 3 cm SVL. Said by staff to be uncommon.

Typhlops lineolatus Jan (1 USNM 533143, 1 NMK S/3436). Big, stout fellows; blackish-brown with gray around mouths and vents. Under rocks.

Lamprophis fuliginosus (Boie) (1 USNM 533141). This is the "common brown house snake" called "Boaedon" by Hedges (1983). Good accounts are provided by Marais (1992) and Branch (1988). Ours was plain, dull grey-brown; paler below; and with light facial trim lines. It was crawling along the kitchen wall at 7 p.m., 5 July, at 12° C.

Psammophis subtaeniatus Peters (1 USNM 533142). This beautiful, rather long (to 1.4 m), elegant snake is illustrated with colour photos in Hedges (1983), Branch (1988) and

Marais (1992). The most detailed account is Marais (1992). Ours had a butter-yellow belly and an elaborate ash-grey head pattern on a rich brown ground. The iris had a red-gold pupil ring and was rust-brown from 10–2 o'clock. Might be common enough for a life history study.

Naja sp. An unidentified cobra was recorded by Keesing (1998).

Bitis arietans Merrem. The puff adder was recorded by Keesing (1998).

ACKNOWLEDGEMENTS

Jonathan Kolby, Wenhua Lu, and Kerry Sherred assisted with the July 1998 collections and Tina Kuklenski assisted on other occasions. Funding was provided through collaboration in biodiversity research between the International Centre of Insect Physiology and Ecology (ICIPE) and the Smithsonian Institution, in co-operation with the National Museums of Kenya. Damaris Rotich at NMK provided facilities and assistance with identifications. Kenya Wildlife Service provided export permits 2259–2266.

REFERENCES

- Branch, B. (1988). *Field Guide to the Snakes and Other Reptiles of Southern Africa*. Ralph Curtis Books, Sanibel, Florida.
- Cheptumo, M., T. Madsen, A. Duff-MacKay, J. Hebrard, D. Rotich, & J. Loman (1986). A survey of the reptiles and amphibians of Kora National Reserve. In M. Coe & N. M. Collins (eds.), *Kora: An Ecological Inventory of the Kora National Reserve, Kenya*. Royal Geographical Society, London. Pp. 235–239
- Cherry, M. I., M. J. Stander, & J. C. Poynton (1999). Amphibians of Mkomazi. In M. Coe, N. McWilliams, G. Stone & M. Packer (eds.), *Mkomazi: the Ecology, Biodiversity and Conservation of a Tanzanian Savanna*. Royal Geographical Society, London. Pp. 405–409
- Flemming, A. F. & M. F. Bates (1999). Reptiles of Mkomazi. In M. Coe, N. McWilliams, G. Stone & M. Packer (eds.), *Mkomazi: the Ecology, Biodiversity and Conservation of a Tanzanian Savanna*. Royal Geographical Society, London. Pp. 411–428.
- Hedges, N.G. (1983). *Reptiles and Amphibians of East Africa*. Kenya Literature Bureau, Nairobi.
- Keesing, F. (1998). Impacts of ungulates on the demography and diversity of small mammals in central Kenya. *Oecologia* **116**: 381–389.
- Keesing, F. (2000). Cryptic consumers and the ecology of an African savanna. *BioScience* **50**: 205–215.
- Loveridge, A. (1937). Zoological results of the George Vanderbilt African Expedition of 1934. Part VII: Reptiles and amphibians. *Proceedings of the Academy of Natural Sciences of Philadelphia* **89**: 265–296.
- Marais, J. (1992). *A Complete Guide to the Snakes of Southern Africa*. Southern Book Publishers, Halfway House, South Africa.
- Rehn, J.A.G. (1936). Zoological results of the George Vanderbilt African Expedition of 1934. Part I: Introduction and itinerary. *Proceedings of the Academy of Natural Sciences of Philadelphia* **88**: 1–14.

- Schiøtz, A. (1999). *Treefrogs of Africa*. Editions Chimaira, Frankfurt am Main.
- Spawls, S. (1978). A checklist of the snakes of Kenya. *Journal of the East Africa Natural History Society and National Museum* **31**(167): 1–18.
- Spawls, S. & D. Rotich (1997). An annotated checklist of the lizards of Kenya. *Journal of East African Natural History* **86**: 61–83.
- Steindachner, F. (1891). Über einige neue und seltene Reptilien- und Amphibien-Arten. Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. *Mathematisch-Naturwissenschaftliche Classe. Wien* **100**: 291–315.
- Young, T. P., C. H. Stubblefield, & L. A. Isbell (1997). Ants on swollen-thorn acacias: species coexistence in a simple system. *Oecologia* **109**: 98–107.
- von Höhnelt, L. (1894). *Discovery of Lakes Rudolf and Stefanie: a narrative of Count Samuel Teleki's exploring & hunting expedition in eastern equatorial Africa in 1887 & 1888, by his companion Lieut. Ludwig von Höhnelt*. Volumes I & II. Translated by Nancy Bell (N. d'Anvers). Longmans, Green and Co., London.