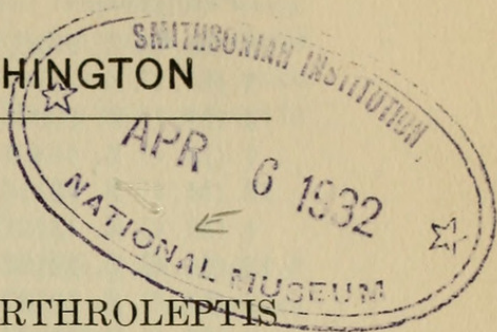


PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON



NEW FROGS OF THE GENERA *ARTHROLEPTIS*
AND *HYPEROLIUS* FROM TANGANYIKA TERRITORY.

BY ARTHUR LOVERIDGE.

In reexamining some East African frogs of the genus *Arthroleptis*, collected in the Uluguru and Usambara Mountains in 1926, and referred to *stenodactylus* Pfeffer (Barbour and Loveridge, 1928, Mem. Mus. Comp. Zool., 50, p. 207) as a result of comparison with other specimens (M. C. Z. 9513-4) which had been similarly confused (Procter, 1920, Proc. Zool. Soc. London, p. 414), I find that the frogs inhabiting the rain forest are distinguishable from those of the dry bush and coastal plain representing typical *stenodactylus*. In addition to the Dar es Salaam specimens listed in the 1928 paper cited above, the Museum of Comparative Zoology has now a representative series of true *stenodactylus* secured during 1929 and 1930.

It seemed possible that the name *lönnerbergi*, proposed by Nieden for a frog from Mombo, might be available for the rain-forest form, as a belt of rain forest survives along the river at Mombo, which lies at the foot of the western Usambara Mountains. However, on submitting a Nyingwa frog to Dr. Ernst Ahl for favour of comparison with the type of *lönnerbergi*, he assures me that I was correct in 1928 in assigning *lönnerbergi* to the synonymy of *stenodactylus* for he considers them specifically identical and has even detected the lingual papilla overlooked by Nieden. Dr. Ahl also considers that *methneri* Ahl is distinct from the Nyingwa frog so that it appears the latter requires a new name, for which I propose

***Arthroleptis stenodactylus uluguruensis*, subsp. nov.**

Type.—Museum of Comparative Zoology, No. 16,100. An adult ♀ from between 7,000 and 8,000 feet at Nyingwa, Uluguru Mountains, Tanganyika Territory, collected by Arthur Loveridge, October 18, 1926.

Paratypes.—

3 (M. C. Z. 9510, 9513-4)	Morogoro, base of Uluguru Mtns.,	25.xii.17.
1 (M. C. Z. 9511)	Uluguru Mtns., just above Morogoro.	19.x.18.
4 (M. C. Z. 10395-6-8-9)	Rain forest on Uliea-Madazini Rd.,	2.iii.23.
7 (M. C. Z. 10401, 13111-5)	Bagilo, Uluguru Mtns., 4. v. 22 and	ix.26.
13 (M. C. Z. 13116-20)	Nyange,	x.26.
1 (M. C. Z. 13121)	Mkangazi,	12.x.26.
13 (M. C. Z. 13122-6)	Nyingwa,	x.26.
2 (M. C. Z. 13127-8)	Vituri,	x.26.
9 (M. C. Z. 13133-7)	Amani, Usambara Mtns.,	xi.26.
1 (M. C. Z. 13138)	Mt. Lutindi,	10.xii.26.
1 (M. C. Z. 13139)	Bumbuli,	xii.26.

Diagnosis.—Without comparative material difficult to distinguish from the typical form from which it may be known by the lesser development of the spade-like, metatarsal tubercle, the more swollen finger tips (which are tapering in *stenodactylus*) and its larger size.

Arthroleptis s. uluguruensis is, however, even more nearly related to *A. s. variabilis* Matschie of the Cameroon Mountains, but the toes of the latter terminate in distinct, slightly pointed, disks though not so well-developed as in *A. adolfi-friderici* Nieden. In 1928, with Dr. Barbour, I considered *variabilis* a synonym of *stenodactylus* bridged by the frogs here described as *uluguruensis*; it is now considered that *variabilis* be recognized as a race of *stenodactylus*.

Other closely related frogs of which the Museum of Comparative Zoology possesses good series are *A. whytii* Boulenger, and *A. reichei* Nieden.

Coloration in life.—As published in 1928, Mem. Mus. Com. Zool., 50, p. 210.

Measurements.—Type ♀. Head and body 35 mm., breadth of head 14 mm., length of head 12 mm., length of snout from nostril 2.5 mm., length of hind limb from anus 44 mm., length of fourth toe 9 mm.

In 1926 the writer collected three female *Hyperolius microps* Günther at Derema, Usambara Mountains and Dar es Salaam. In the last locality two smaller frogs of an allied species were captured; one of these was sexed in the field and found to be a male, the appearance of the other being similar it was assumed to be a male (in which I was wrong for dissection in the laboratory has shown it to be a female, a conclusion independently reached by Dr. L. Hoadley and Mr. H. Hechenbleikner to whom I am indebted for examining it) and a further error was made in assuming that these two frogs were males of *microps*, their differences from the females being attributed to sexual variation (*vide* Barbour & Loveridge, 1928, Mem. Mus. Comp. Zool., 50, p. 225).

In 1929, however, *microps* was found breeding at Bagamoyo and a series of fifteen frogs, representing both sexes, were taken together with their eggs. It was at once obvious that the previous assumption was wrong. The possibility of the identity of the two small Dar es Salaam frogs with *H. pygmaeus* Ahl from Tanga or *H. petersii* Ahl from Mombasa

was carefully considered but they differ from these frogs in the same characters as those in which they differ from *microps*; in fact it seems probable that *pygmaeus* is a synonym of *microps* and possibly the same applies to *petersii* also. As I am unable to refer the Dar es Salaam frogs to any known species, they may be known as

***Hyperolius usaramoae*, sp. nov.**

Type.—Museum of Comparative Zoology, No. 13,363. An adult ♂ from Mogogoni swamp, south of Dar es Salaam, Usaramo, Tanganyika Territory, collected by Arthur Loveridge, November 4, 1926.

Paratype.—Museum of Comparative Zoology, No. 13,364. An adult ♀ with the same history as the type, both being taken in the palm-leaf thatching of shelters constructed by rice-guarding natives at the edge of Mogogoni swamp.

Diagnosis.—♂ without a gular disk or pectoral fold. Closely related to *H. microps* Günther, from which it differs in the markedly shorter, therefore blunter and less acuminate snout; the longer hind limb for the tibio-tarsal articulation of the adpressed hind limb (without any straining) reaches well beyond the tip of the snout in the ♂ and far beyond in the ♀, while in 18 *microps* (from Dar es Salaam, Bagamoyo and Derema) it usually extends no further than the eye but occasionally as far as the nostril; the webs of the fingers and toes are more developed in *usaramoae* than in *microps*; the thighs of ♂ *microps* are pigmented, those of *usaramoae* colorless, while the constant and double row of lateral dots which lie above and below a silvery lateral line on the flanks of *microps*, are entirely lacking in *usaramoae*.

Coloration in life.—As published in 1928, Mem. Mus. Comp. Zool., 50, p. 226 based on the ♂ type. In alcohol the only markings are numerous, scattered, minute flecks of pigmentation which may, or may not, concentrate on the canthal region to form a streak from nostril to eye.

Measurements.—Type ♂. Head and body to anus 16 mm., breadth of head 6.5 mm., length of head 6.5 mm., length of snout from nostril 1 mm., length of hind limb from anus 30 mm., length of fourth toe 5 mm.

Paratype ♀.—Head and body to anus 19 mm., breadth of head 7 mm., length of head 7 mm., length of snout from nostril 1.25 mm., length of hind limb from anus 32., length of fourth toe 5 mm.



Loveridge, Arthur. 1932. "New frogs of the genera *Arthroleptis* and *Hyperolius* from Tanganyika Territory." *Proceedings of the Biological Society of Washington* 45, 61–63.

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