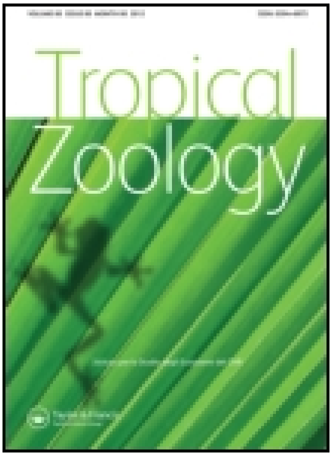


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# A new Stenasellus (Crustacea Isopoda Stenasellidae), from the Eastern Province of Kenya and notes on Kenyan Stenasellidae

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# A new *Stenasellus* (Crustacea Isopoda Stenasellidae), from the Eastern Province of Kenya and notes on Kenyan Stenasellidae

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A new species of the genus *Stenasellus* Dollfus 1897 is described from the Chalbi Desert in the Eastern Province of Kenya. The new species is similar to *S. pardii* Lanza 1966 from Somalia and has been collected near the outlets of a spring. Also the species *S. kenyensis* Magniez 1975, present in the South of the country, has been collected in the region. The distribution of the species is discussed.

KEY WORDS: Asellota, Stenasellidae, new species, Kenya, taxonomy, zoogeography.



## INTRODUCTION

During a recent research trip to the Eastern Province of Kenya as part of a programme for the study of stygofauna of eastern Africa, I had the opportunity to collect a few specimens of an isopod of the genus *Stenasellus* Dollfus 1897 from the waters of a spring in the Chalbi desert which on closer examination appear to belong to a species new to science.

Several other specimens of *Stenasellus* were also collected from two localities near Isiolo (Eastern Province). The specimens from both localities belong to the species *Stenasellus kenyensis* Magniez 1975 as the shape of the second male pleopod in particular proves.

## SYSTEMATICS

### *Stenasellus ruffoi* n. sp.

*Specimens examined.* Holotype ♂, Kalacha (Marsabit District), Eastern Province, Kenya, 28.XI.1990, NMK[1]. Paratypes: 1 ♀, Kalacha (Marsabit District), Eastern Province, Kenya, 28.XI.1990, NMK; 2 ♀♀, Kalacha (Marsabit District), Eastern Province, Kenya, 28.XI.1990, MZF[2], G. Messana legit.

*Description.* A small and slender *Stenasellus* (Fig. 1a), with subparallel margins, maximum observed length 6.54 mm, maximum observed width (V pereonite) 1.15 mm. Cephalon anteriorly concave, with the two typical anterolateral dark spots (Lanza et al. 1970, Pitzalis et al. 1991). Endopodite of II male pleopod slightly longer than exopodite, with external margin of second article terminally overlapping internal margin. Endopodites of pleopods III-V bifid, uropods about 3/4 of pleotelson.

Antennae I (Fig. 2a) short, hardly reaching first pereonite, two aestetascs are present on each of the three distal articles.

Antennae II (Fig. 2b), reaching fifth pereonite, flagellum with more than 30 articles, squama on third article of peduncle, well developed and bearing two long spines.

Left mandible (Fig. 2c), pars incisiva and lacinia mobilis four dentate, five lifting spines, pars molaris with several setae.

Right mandible (Fig. 2d), pars incisiva five dentate, six lifting spines, pars molaris with several setae.

First maxilla (Fig. 2e), exite with 11 dentate spines, endite with five setae one of which setose.

Second maxilla (Fig. 2f), external and median exite with six falcate, denticulate setae, internal exite with nine glabrous and two setulose chaetae.

Maxilliped (Fig. 2g), with two glabrous coupling hooks, palp five segmented.

Peraeopod I (Fig. 1b), strong and subchaelate, with six strong spines on dactyl and eight strong dentate spines on propus.

Peraeopods II-VII (Fig. 1c-h), progressively larger, dactyl with two spines.

Genital papilla (Fig. 3i) sclerified, subcylindrical, reaching anterior margin of I pleonite.

Pleopod I (Fig. 3a), basipodite without coupling hooks.

Exopodite with about 10 setae of which the four internal plumose.

Female pleopod II (Fig. 3b), subtriangular, with one or two setae on the sternal side and a few plumose setae on distal margin.

Male pleopod II (Figs 3c-d, 4A-B), sympodite with external margin rounded, sternal side with one spine. Proximal article of exopodite with one glabrous seta, distal article drop-like with about 12 plumose setae along margin. Proximal article of endopodite about half of distal article and with accomodating groove. Distal article gutter-like in its caudal part — external margin slightly overlapping the internal one — covered by tiny scale spines.

[1] NMK = National Museums of Kenya, Nairobi, Kenya.
[2] MZF = Museo Zoologico, Università di Firenze, Firenze, Italy.

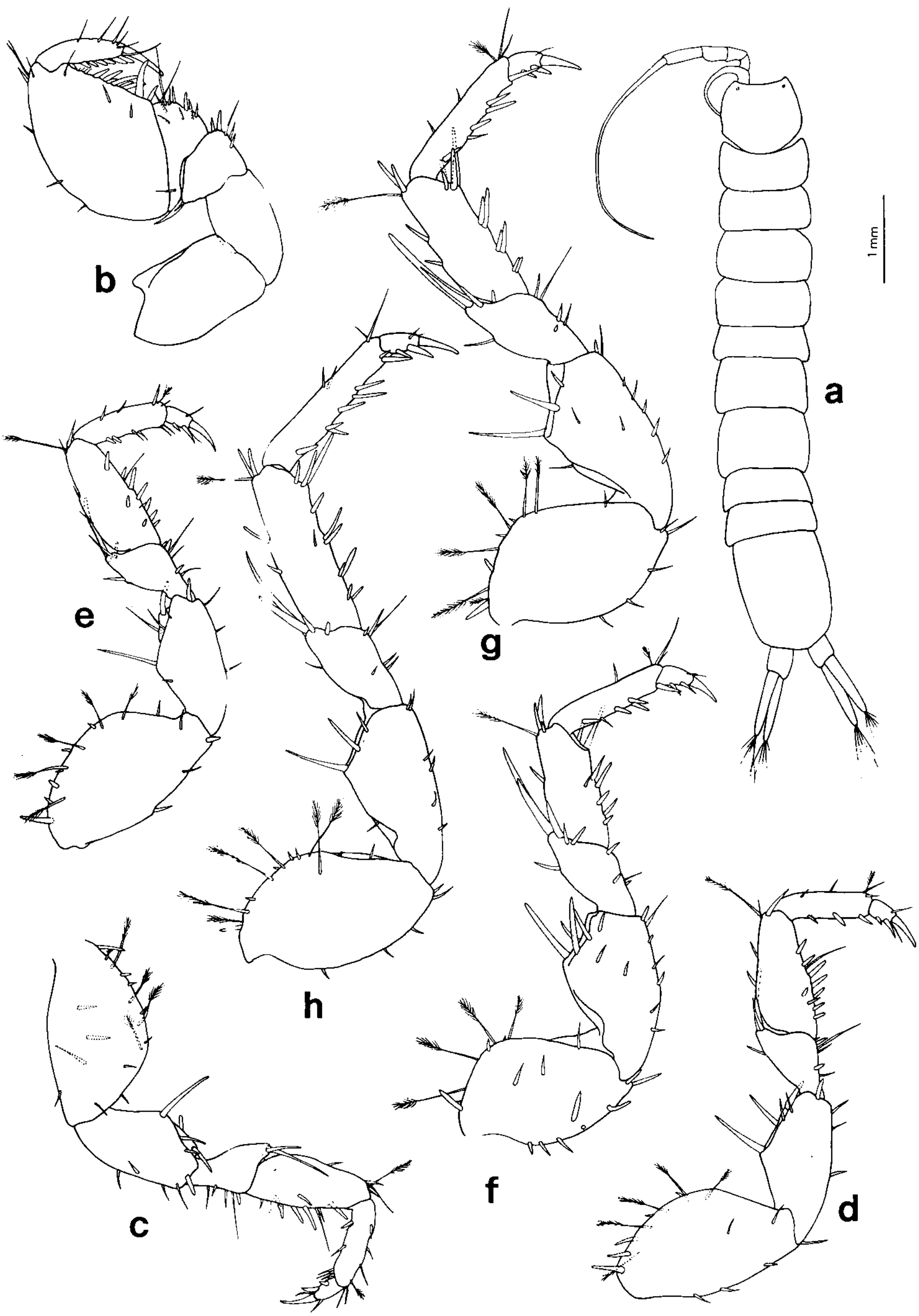


Fig. 1. — *Stenasellus ruffoi* n. sp.: a, body dorsal; b-h, peraeopod I-VII.

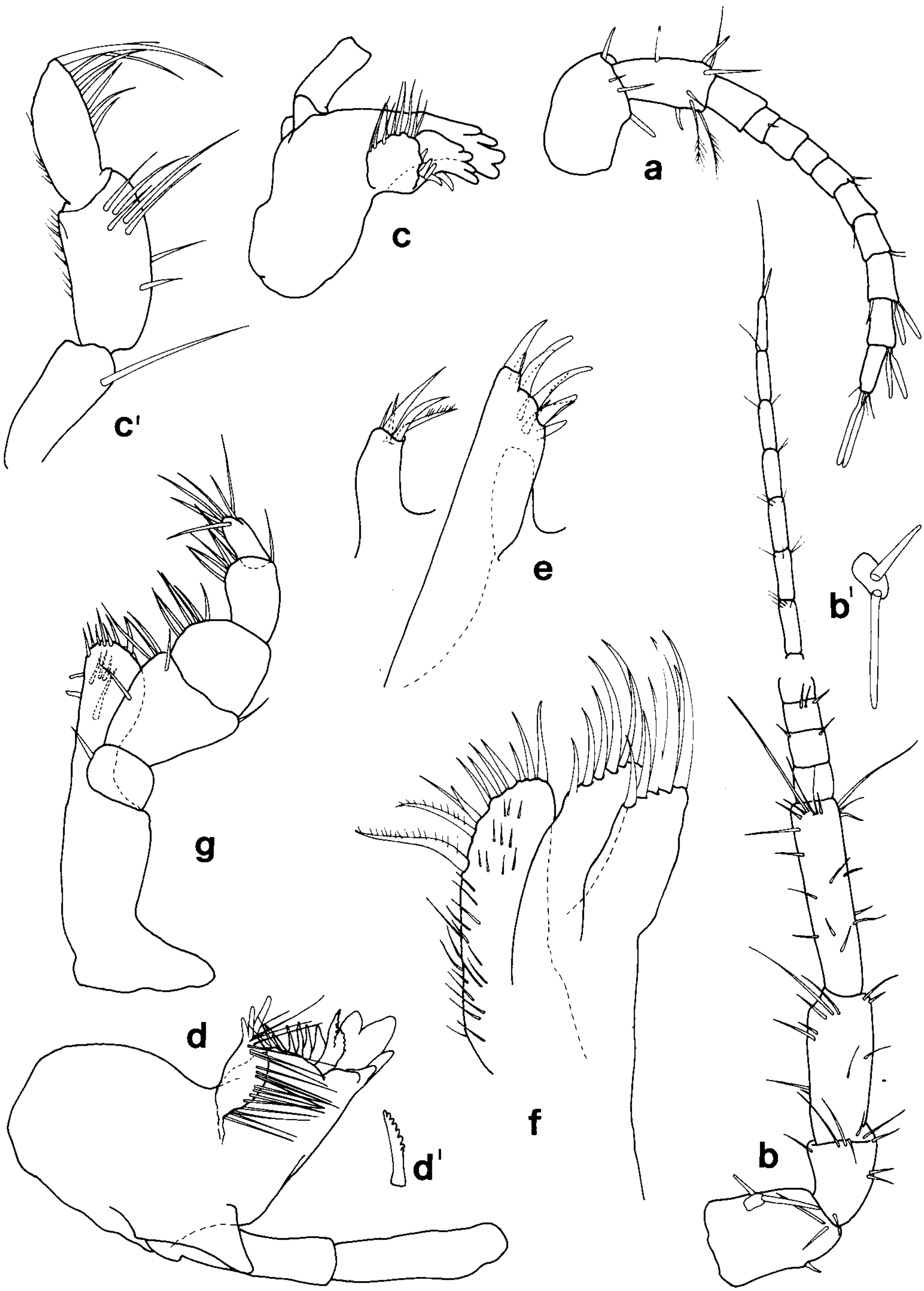


Fig. 2. — *Stenasellus ruffoi* n. sp.: a, antenna I; b, antenna II; b', squama of antenna II; c, left mandible; c', palp of the mandible; d, right mandible; d', spine from spine row; e, maxilla I; f, maxilla II; g, maxilliped.

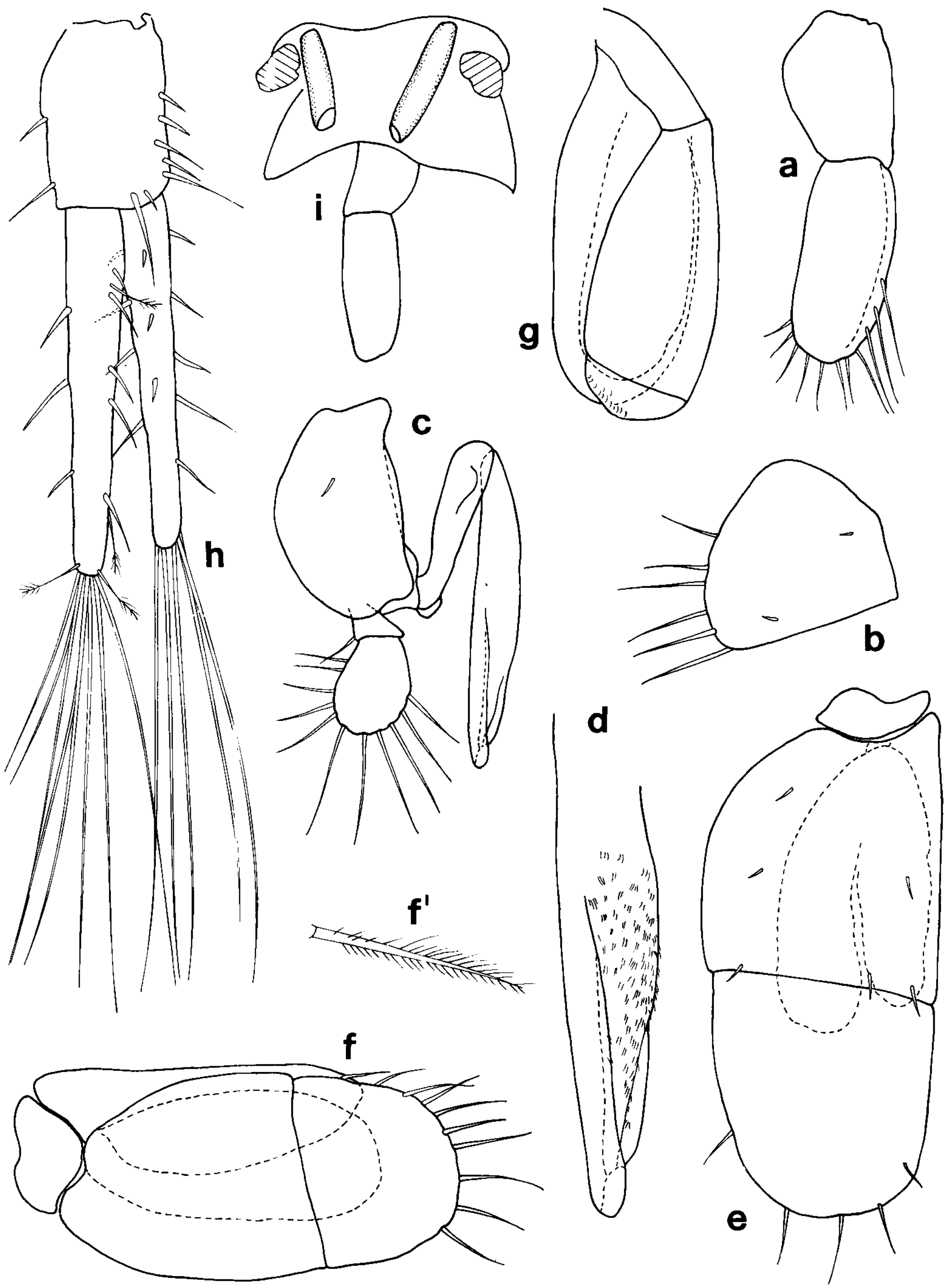


Fig. 3. — *Stenasellus ruffoi* n. sp.: a, male pleopod I; b, female pleopod II; c, male pleopod II; d, close view of tip of endopodite; e, pleopod III; f, pleopod IV; g, pleopod V; h, uropod; i, seventh sternite with genital papillae.

Pleopods III-V (Fig. 3e-g), exopodite with transverse groove, medial in the third, submedial in the fourth and subterminal in the fifth pleopod. Endopodite bilobate in all three peopods.

Uropods (Fig. 3h), exopodite slightly smaller than endopodite which bears one subproximal seta and three sensory setae at the tip.

. *Derivatio nominis*. The species is dedicated to Professor Sandro Ruffo for the friendly suggestions and support he has always given me.

*Discussion*. The general aspect of this *Stenasellus*, resembles that of *S. pardii* Lanza 1966 although the general aspect and characters of this species are more interstitial, such as its smaller size, shorter uropods and a single spine on dactyl of the peraeopods. The shape of second male pleopod is very similar in the two species, but that of *S. ruffoi* lacks the apical tooth and setae present in *S. pardii* on the terminal article of the endopodite. Moreover, the apical external margin of the same article completely covers the internal one.

*Ecology*. The specimens of *S. ruffoi* were found near one of the outlets of the Kalacha springs crawling under blocks of soft calcareous concretions riddled with holes which might have been dug by the *Stenasellus* themselves. The temperature of the water was 34 °C at 7:30 in the morning, pH 8, oxygen content 3.1 mg/l, sulphate 1600 mg/l, chloride 150 mg/l, total hardness 18 °d (German degrees), temporary hardness 4.6 °d, calcium 92 mg/l, magnesium 228.4 mg/l.



### ***Stenasellus kenyensis*** Magniez 1975

*Stenasellus kenyensis* Magniez 1975: 325-332, figs 1-15; Chelazzi & Messana 1987: 286-287.

*Type material examined*. Kenya, 2 ♀♀ 2 ♂♂ topotypes, Cobra cavern, Tsavo East National Park, leg. C. Hillman(?), 2.VI.1974(?), NMK.

*Specimens examined*. Kenya, 2 ♂♂, 2 ♀♀, 1 ♀ ov., Buffalo Springs, Samburu National Park, leg. G. Messana, 24.XI.1987, NMK; 5 ♂♂, 21 ♀♀, 1 ♀ ov., Buffalo Springs, Samburu National Park, 24.XI.1987; 1 ♀, Kanchora Sala, Shaba National Park, 24.XI.1987; 4 ♂♂, 1 ♀, 3 ♀♀ ov., Buffalo Springs, Samburu National Park, XII.1990, leg. G. Messana, MZF.

*Discussion*. The material examined corresponds to topotypic material in practically every detail. Small differences might be found in the body size — the Samburu and Shaba specimens being smaller than those from Tsavo — and in a reduced chaetotaxy which might depend on the differences in size. These differences between the two populations might be due to the different kind of environment inhabited. The Tsavo population is troglobitic, while the Samburu specimens were found between the roots of the grass growing around the springs, thus suggesting a more interstitial way of life.

The shape of the endopodite of the male pleopod II is almost identical in specimens from the three localities (Fig. 4c-d). The only noticeable slight differences between the samples examined were a different angle between the main axis of the terminal article of the endopodite and the tip of the same, and the shape of the terminal article of the exopodite which is rounded in the Buffalo Springs specimens and more oval in those from the Cobra Cavern.

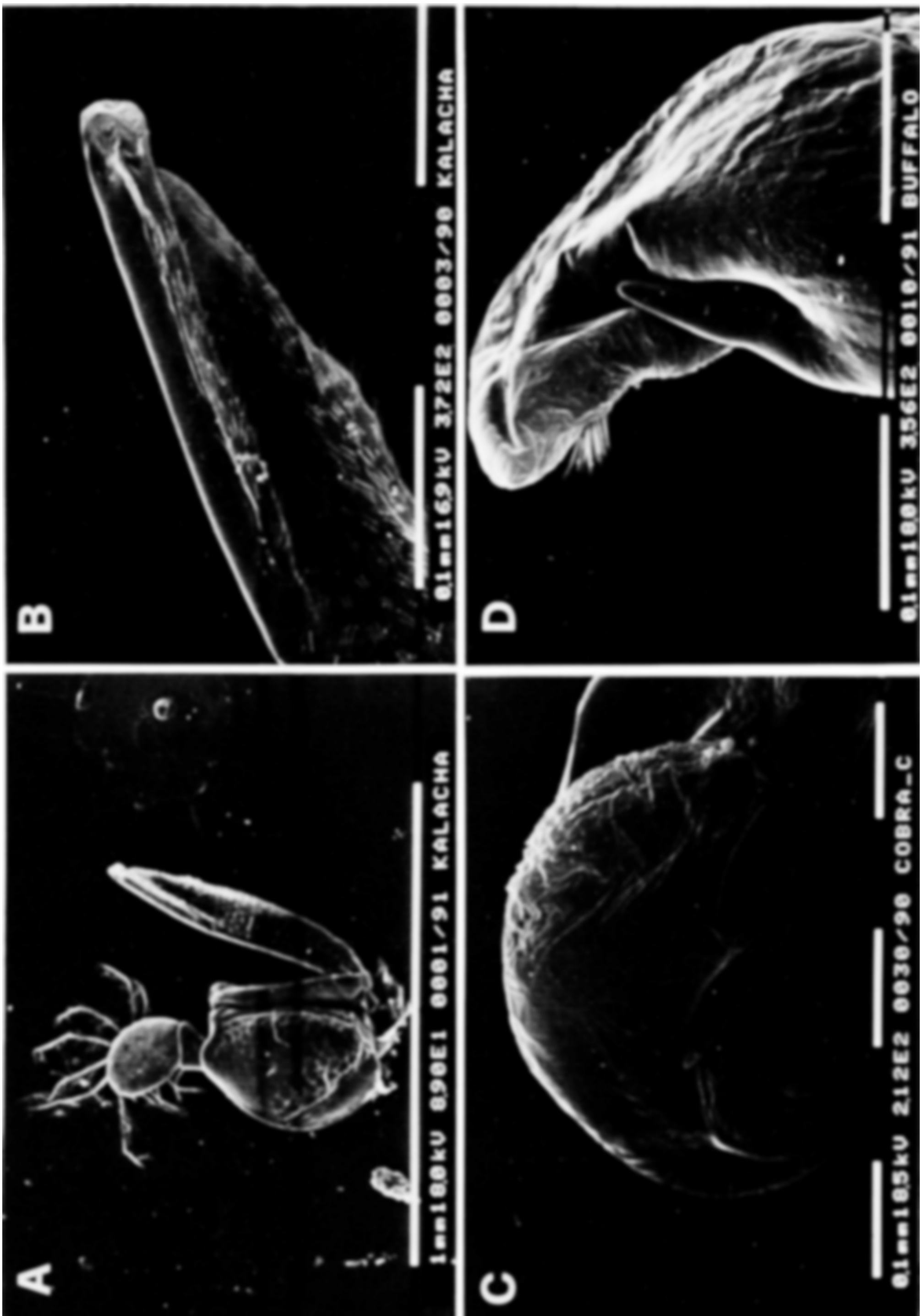


Fig. 4. — *Stenasellus ruffoi* n. sp.: A, male pleopod II and B, close view of the same. *S. kenyensis* Magniez 1975: C, close view of endopodite of male pleopod II, specimen from Cobra Cavern; D, as precedent, from Buffalo Springs.

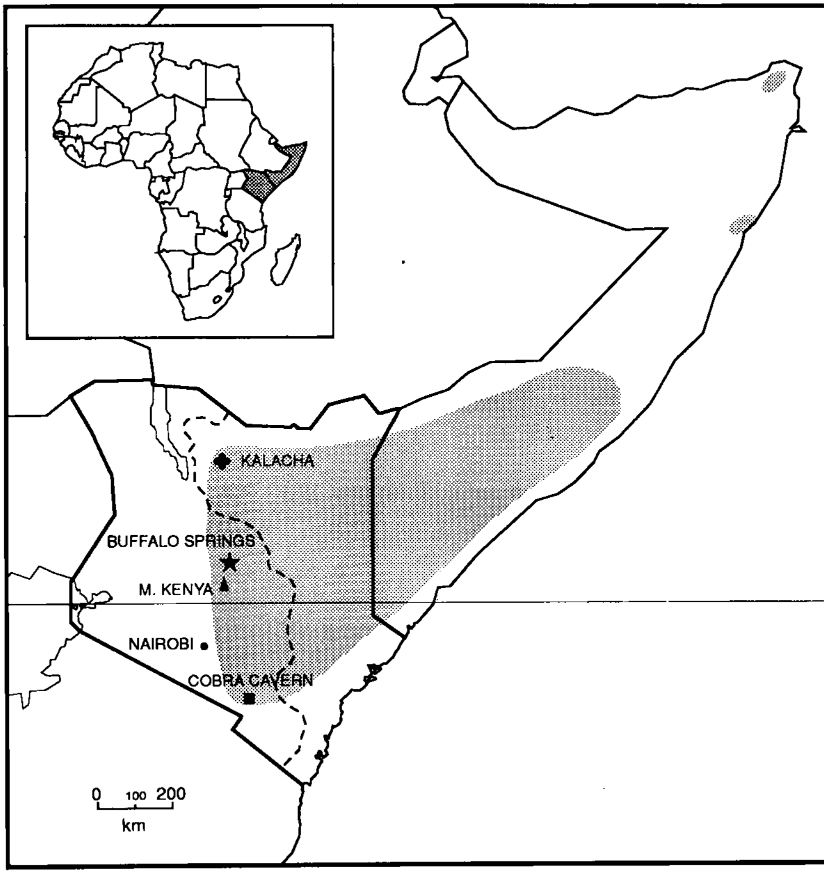


Fig. 5. — Map showing the distribution of East African stenasellids (hatched area). Dotted line is the approximate western limit of the former fluvio-deltaic and marine flooded zone in Kenya.



## ZOOGEOGRAPHIC CONSIDERATIONS

The finding in north eastern Kenya of a new species of *Stenasellus* and the discovery of new localities for *S. kenyensis* are rather interesting. The distribution area of the genus is extended to a desertic region which represents the western limit of the genus in eastern Africa. The Kenyan *Stenasellus* discovered so far all live in zones which were part of, or bordered, a large area, which in several periods from the Late Jurassic to Mid-Cretaceous was flooded partly by lacustrine and partly by fluvio-deltaic waters (N.O.C.K. & W.A.I. 1987) (Fig. 5). Kalacha is located in the middle of the so-called North Anza Basin Extension formed by lacustrine sediments interbedded with lava. Buffalo Springs and Kanchora Sala are situated in a zone of Precambrian sediments with local limestones. Cobra Cavern is a limestone cave in the south of Kenya.

In my opinion, the similarity between *S. ruffoi* and *S. pardii* and the presence of *S. kenyensis* in two distinct localities so far apart from each other, demonstrates, as already outlined in a previous paper (MESSANA 1990), a primary continuity of environments for East African stenasellids. The family up to now is present in East Africa with two genera and seven species (five in Somalia and two in Kenya).

Only future and more extensive research, on both sides of the Rift Valley and on the Ethiopian Plateau, will show how far the colonization of subterranean waters was extended and how it was affected by the geological events which occurred to the region.

## ACKNOWLEDGEMENTS

I would like to thank Professor Guy Magniez for informations provided, Michael Mungai for the kind help he gave me during my visit at the Museum of Nairobi and Simon Kurie who was my companion in the 1990 trip. Cinzia Giuliani gave valuable help with the drawings.

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