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Scorpions of Djibouti, Eritrea, Ethiopia, and Somalia (Arachnida: Scorpiones), with a key and descriptions of three new species

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Abstract. Scorpions of Djibouti, Eritrea, Ethiopia, and Somalia are revised, with a key and geographic distributions given for all the species. Lectotypes are designated for *Buthus minax* L. Koch, 1875, *Buthus hottentotta tigrinus* Caporiacco, 1937, *Parabuthus granimanus* Pocock, 1895, *Parabuthus granimanus fuscicauda* Caporiacco, 1947, *Parabuthus mixtus obscurior* Caporiacco, 1941, *Parabuthus mixtus* Borelli, 1925, *Scorpio cavimanus* Pocock, 1888, *Pandinus intermedius* Borelli, 1919, *Scorpio pallidus* Kraepelin, 1894, and *Scorpio smithi* Pocock, 1897. *Neobuthus* Hirst, 1911 is synonymized with *Butheolus* Simon, 1882. The following species are synonymized: *Neobuthus berberensis* Hirst, 1911 with *Butheolus ferrugineus* Kraepelin, 1898; *Buthus hottentotta tigrinus* Caporiacco, 1937 with *Hottentotta minax* (L. Koch, 1875); *Buthus fuscitruncus* Caporiacco, 1936 with *Hottentotta trilineatus* (Peters, 1862); *Parabuthus granimanus fuscicauda* Caporiacco, 1947 with *Parabuthus granimanus* Pocock, 1895; *Parabuthus heterurus stefaninii* Caporiacco, 1927 with *Parabuthus heterurus* Pocock, 1897; *Parabuthus leiosoma abyssinicus* Pocock, 1901 and *Parabuthus leiosoma dmitrievi* Birula, 1903 with *Parabuthus leiosoma* (Ehrenberg, 1828); *Parabuthus mixtus* Borelli, 1925, *Parabuthus mixtus obscurior* Caporiacco, 1941, and *Parabuthus zavattarii* Caporiacco, 1939 with *Parabuthus pallidus* Pocock, 1895; *Uroplectes fischeri caporiaccoi* Fet, 1997 and *Uroplectes patrizii* Caporiacco, 1936 with *Uroplectes fischeri* (Karsch, 1879); *Scorpio gregoryi* Pocock, 1896 with *Pandinus* (*Pandinurus*) *exitialis* (Pocock, 1888); *Brotheas hirsutus* L. Koch, 1875 and *Scorpio africanus subtypicus* Kraepelin, 1894 with *Pandinus* (*Pandinurus*) *magrettii* Borelli, 1901; and *Pandinus intermedius* Borelli, 1919 and *Pandinus citernii* Borelli, 1919 with *Pandinus* (*Pandinus*) *phillipsii* (Pocock, 1896). *Uroplectes pardii* sp. n. from Somalia and *Parabuthus eritreaensis* sp. n. and *Pandinus* (*Pandinops*) *eritreaensis* sp. n. from Eritrea are described. *Hottentotta minax niloticus* Birula, 1928 is elevated to a full-species status. First records are established for *Leiurus quinquestriatus* Ehrenberg, 1828 in Somalia, *Lychas obsti* Kraepelin, 1913 in Ethiopia and Somalia, *Pandinus* (*Pandinops*) *hawkeri* Pocock, 1900 in Ethiopia, and *Pandinus* (*Pandinurus*) *exitialis* (Pocock, 1888) in Somalia.

Taxonomy, description, revision, new species, new synonymy, new combination, checklist, key, Scorpiones, Djibouti, Eritrea, Ethiopia, Somalia

INTRODUCTION

The main reason for conducting this revision is that it has never before been done for the region, and that especially in Somalia the current situation virtually precludes faunal exploration. Yet, that country is the source of rich collections housed principally in Italian museums, from which chiefly Caporiacco and Borelli described a number of species at the most part known only from types that remain to be revised. It is precisely these species that I have concentrated on, and have managed to find and revise also some types regarded by previous authors as lost or of unknown reposition; some were found in museums other than those given in the literature. Having the opportunity to examine types simultaneously with other material collected at the same localities enabled me to discern variation, which is the main reason why so many species are hereby synonymized. Unfortunately, certain types have not surfaced and must be considered lost. In some cases there

is enough evidence to synonymize such species at least equivocally, however six species are so dubious that they cannot be placed in the system and the key even tentatively.

MATERIAL AND METHODS

The institutional abbreviations listed below and used throughout are mostly after Arnett et al. (1993).

BMNH – The Natural History Museum, London, U. K.;
FKCP – František Kovařík Collection, Prague, Czech Republic;
HNHM – Hungarian Natural History Museum, Budapest, Hungary;
MCSN – Museo Civico de Storia Naturale "Giacomo Doria", Genua, Italy;
MIZT – Museo Regionale di Scienze Naturali, Turin, Italy;
MNHN – Muséum national d'Histoire naturelle, Paris, France;
MSNM – Museo Civico di Storia Naturale di Milano, Milan, Italy;
MZUF – Museo Zoologico "La Specola", Florence, Italy;
NMPC – National Museum (Natural History), Prague, Czech Republic;
SMFD – Natur-Museum Senckenberg, Frankfurt, Germany;
ZMHB – Zoologisches Museum, Humboldt Universität, Berlin, Germany;
ZMUH – Zoologisches Institut und Zoologisches Museum, Universität Hamburg, Germany.

This study was conducted in 1997–2002. It includes only specimens that I examined and found to come from Djibouti, Eritrea, Ethiopia or Somalia. Specimens from elsewhere are not included even though their examination enabled me to better understand the status of the species (e. g. large collections of *Parabuthus pallidus* Pocock, 1895 from Kenya and Tanzania, or *Hemiscorpius socotranus* Pocock, 1899 from the Socotra Island). This is why no material of e. g. *Androctonus amoreuxi* (Audouin, 1825) is listed, I was able to study many specimens but none from Ethiopia. However, there is no reason to doubt the presence of this species in Ethiopia. Conversely, examined type specimens are always included, although they may not come from the region covered by the revision.

The checklist of species (Tab. 1) includes only those synonyms whose type localities are in the studied region. Commentaries and justifications for synonymizing species are always appended to the species deemed valid. Since literature and occurences for all species of scorpions were already summarized (Fet et al. 2000), I have considered it unnecessary to append references to the occurences given in Table 1 unless they represent new information or differ from those in Fet et al. (2000).

Listed below are all specimens from the region present in collections which I have completely revised (FKCP, HNHM, NMPC, SMFD, MZUF) and in others named above. Emphasis has been placed on Italian museums.

Buthidae C. L. Koch, 1837

Androctonus australis (Linné, 1758)

Material examined. **Somalia**, Sar Uanle, 30.V.1973, 1juv., MZUF.

Babycurus multisubaculeatus Kovařík, 2000

Type material examined. **Somalia**, Afgooye env., X. 1980, 1F (holotype) 1M (paratype), collector unknown, FKCP.

Babycurus somalicus Hirst, 1907

Type material examined. **Somalia**, Wagur Mts, behind Berbera, 2F (holotype and paratype), purchased by W. Bury, BMNH No. 1906.3.25.126.

Babycurus subpunctatus Borelli, 1925

Type material examined. **Somalia**, Cuban Cubu, IX.1923, 1F (holotype), leg. S. Patrizi, MCSN.

Tab. 1. Checklist of scorpions of Djibouti, Eritrea, Ethiopia, and Somalia with geographic distribution

	Djibouti	Eritrea	Ethiopia	Somalia
Buthidae C. L. Koch, 1837				
Androctonus amoreuxi (Audouin, 1825)	–	–	x	–
Androctonus australis (Linné, 1758)	–	–	–	x
Babycurus multisubaculeatus Kovařík, 2000	–	–	–	x
Babycurus somalicus Hirst, 1907	–	–	–	x
Babycurus subpunctatus Borelli, 1925	–	–	–	x
Babycurus wituensis taramassoi Borelli, 1919	–	–	x	x
= *Babycurus johnstonii ochraceus* Masi, 1912				
= *Babycurus crassimanus* Caporiacco, 1936				
= *Babycurus patrizii* Borelli, 1925				
Babycurus zambonellii Borelli, 1902	–	x	?	–
Buthacus calviceps (Pocock, 1900)	–	–	–	x
Buthacus leptochelys (Ehrenberg, 1829)	–	x	x	–
Butheoloides polisi Lourenço, 1996	–	–	x	–
Butheolus ferrugineus Kraepelin, 1898	x	–	–	x
= *Neobuthus berberensis* Hirst, 1911, **syn. n.**				
Buthus occitanus berberensis Pocock, 1900	x	x	x	x
Compsobuthus abyssinicus (Birula, 1903)	x	x	x	x
Compsobuthus maindroni (Kraepelin, 1901)	–	–	x	x
Compsobuthus werneri (Birula, 1908)	–	–	x	x
Hottentotta minax (L. Koch, 1875)	–	x	x	–
= *Buthus hottentotta tigrinus* Caporiacco, 1937, **syn. n.**				
Hottentotta polystictus (Pocock, 1896)	x	x	x	x
Hottentotta scaber (Ehrenberg, 1828)	–	x	x	–
Hottentotta trilineatus (Peters, 1862)	x	x	x	x
= *Buthus trilineatus fuscatus* Masi, 1912				
= *Buthus fuscitruncus* Caporiacco, 1936, **syn. n.**				
Isometrus maculatus (De Geer, 1778)	–	?	x	x
Lanzatus somalicus Kovařík, 2001	–	–	–	x
Leiurus quinquestriatus Ehrenberg, 1828	–	–	x	x
Lychas asper (Pocock, 1891)	–	–	–	x
Lychas obsti Kraepelin, 1913	–	–	x	x
Microbuthus pusillus Kraepelin, 1898	x	–	x	x
Nanobuthus andersoni Pocock, 1895	?	–	–	?
Odonturus dentatus Karsch, 1879	–	–	–	x
Orthochiroides vachoni Kovařík, 1998	–	–	–	x
Orthochirus aristidis (Simon, 1883)	x	–	–	x
Parabuthus eritreaensis **sp. n.**	–	x	–	–
Parabuthus granimanus Pocock, 1895	x	x	x	x
= *Parabuthus granimanus fuscicauda* Caporiacco, 1947, **syn. n.**				
Parabuthus heterurus Pocock, 1897	–	–	x	x
= *Parabuthus stefaninii* Caporiacco, 1927, **syn. n.**				
Parabuthus leiosoma (Ehrenberg, 1828)	x	x	x	x
= *Parabuthus abyssinicus* Pocock, 1901, **syn. n.**				
= *Parabuthus liosoma dmitrievi* Birula, 1903, **syn. n.**				
Parabuthus pallidus Pocock, 1895	?	x	x	x
= *Parabuthus mixtus* Borelli, 1925, **syn. n.**				
= *Parabuthus mixtus obscurior* Caporiacco, 1941, **syn. n.**				
= *Parabuthus zavattarii* Caporiacco, 1939, **syn. n.**				
Sabinebuthus elegans Lourenço, 2001	–	–	–	x
Somalibuthus demisi Kovařík, 1998	–	–	–	x
Somalicharmus whitmanae Kovařík, 1998	–	–	–	x

Tab. 1. Checklist of scorpions of Djibouti, Eritrea, Ethiopia, and Somalia with geographic distribution

	Djibouti	Eritrea	Ethiopia	Somalia
Uroplectes fischeri (Karsch, 1879) = *Uroplectes fischeri caporiaccoi* Fet, 1997, **syn. n.** = *Uroplectes patrizii* Caporiacco, 1936, **syn. n.**	–	–	–	x
Uroplectes occidentalis Simon, 1876	–	–	–	x
Uroplectes pardii **sp. n.**	–	–	–	x
Uroplectoides abyssinicus Lourenço, 1998	–	–	x	–
Hemiscorpiidae Pocock, 1893				
Hemiscorpius socotranus Pocock, 1899	–	–	–	x
Liochelidae Fet et Bechly, 2001				
Iomachus politus Pocock, 1896 = *Jomachus borana* Caporiacco, 1939	–	–	x	–
Scorpionidae Latreille, 1802				
Pandinus (*Pandinoides*) *cavimanus* (Pocock, 1888) = *Pandinus militaris* Pocock, 1900	–	–	–	x
Pandinus (*Pandinoides*) *platycheles* Werner, 1916	–	–	x	x
Pandinus (*Pandinops*) *bellicosus* (L. Koch, 1875) = *Pandinus pugilator* Pocock, 1900	–	x	x	x
Pandinus (*Pandinops*) *colei* (Pocock, 1896)	–	–	x	x
Pandinus (*Pandinops*) *eritreaensis* **sp. n.**	–	x	–	–
Pandinus (*Pandinops*) *hawkeri* Pocock, 1900	–	–	x	x
Pandinus (*Pandinops*) *peeli* Pocock, 1900	–	–	–	x
Pandinus (*Pandinops*) *pococki* Kovařík, 2000	–	–	–	x
Pandinus (*Pandinurus*) *exitialis* (Pocock, 1888) = *Scorpio gregoryi* Pocock, 1896, **syn. n.**	–	x	x	–
Pandinus (*Pandinurus*) *magrettii* Borelli, 1901 = *Brotheas hirsutus* L. Koch, 1875, **syn. n.** = *Scorpio africanus subtypicus* Kraepelin, 1894, **syn. n.** = *Pandinus exitialis sudanicus* Hirst, 1911	–	x	x	?
Pandinus (*Pandinurus*) *meidensis* Karsch, 1879	–	–	–	x
Pandinus (*Pandinurus*) *pallidus* (Kraepelin, 1894)	–	–	?	x
Pandinus (*Pandinus*) *phillipsii* (Pocock, 1896) = *Pandinus intermedius* Borelli, 1919, **syn. n.** = *Pandinus citernii* Borelli, 1919, **syn. n.**	–	–	–	x
Pandinus (*Pandinus*) *smithi* (Pocock, 1897)	–	–	?	x

Babycurus wituensis taramassoi Borelli, 1919

Type material examined. **Somalia**, Giumbo, VII.1923, 1F(im.) (holotype of *Babycurus patrizii* Borelli, 1925), leg. S. Patrizi, MCSN; Belet Amin, 1M (holotype of *Babycurus crassimanus* Caporiacco, 1936), VI. 1924, MCSN. Additional material examined. **Ethiopia**, Gemu Gofa, Arba Minch, 2–3.V.1997, 2M1F(im.), leg. Werner, FKCP. **Somalia**, Belet Amin, 2F8juvs, leg. Patrizi, det. Caporiacco as *B. taramassoi*, MCSN; Ola Uager, VIII.1934, 3F, leg. Patrizi, det. Caporiacco as *B. taramassoi*, MCSN; Belet Amin, VII.1934, 1M1F2juvs, leg. Steganini & Puccioni, MZUF; Afgoi, 13.VIII.1959, 1Fim., 2.IX.1959, 1F, MZUF; Giohar foresta, 3.VIII.1968, 1F; Giohar snai, 5.VIII.1968, 1juv., 11.IX.1968, 1juv., MZUF; Giohar, IX.1969, 1juv., 8.VIII.1970, 1F, MZUF; Ola Uager (Campo), 11.–12.VII.1970, 1Fim., MZUF; Ola Uager (Oltra Gjuba), 15.VII.1970, 2F2im. 19juvs before first ecdysis, MZUF; Ola Uager, 12.VIII.1970, 1juv., 15.–19.VIII.1970, 17juvs, MZUF; Gelib, 1970, 1F, leg. Tarabini, MZUF; Afgoi, 14.IV.1976, 1Fim., leg. Fagetto, MZUF; Afgooye env., X.1980, 1M4F, FKCP.

Babycurus zambonellii Borelli, 1902

Type material examined. **Eritrea**, Chenafena, 1M (holotype), leg. Zambonelli, MIZT No. Sc18 (ex580).
Additional material examined. **Ethiopia**, Shoa, Paco Nat. Awash, 15.IV.1971, 1juv. (det. ?), leg. Azzaroli, MZUF (rev. Vachon – No. VA 1498).

Buthacus calviceps (Pocock, 1900)

Type material examined. **Somalia**, North West Somailand, Berbera 16.IV. or Hargaisa 25–28.IV.1897, 1F, leg. C.V.A. Peel; BMNH.
Additional material examined. **Somalia**, Galgalo env., 1980, 1M, leg. Dorsak, FKCP.

Butheolus ferrugineus Kraepelin, 1898

Butheolus ferrugineus Kraepelin, 1898: 43.
Neobuthus berberensis Hirst, 1911: 462; **syn. n.**

Type material examined. **Djibouti**, Gulf of Aden, Tadjura Bay, 1M (holotype), ZMUH. **Somalia**, Berbera, 1F (holotype of *Neobuthus berberensis* Hirst, 1911), BMNH No. 1906.3.25.125, purchased G. W. Bury.
Additional material examined. **Somalia**, Chisimaio, VI. 1980, 1F, leg. Dorsak, FKCP.

Comments. Lourenço (2001) attempted to find sound characters to distinguish the genera *Butheolus* Simon, 1882, *Nanobuthus* Pocock, 1895, and *Neobuthus* Hirst, 1911. I concur with his opinion that *Butheolus* and *Nanobuthus* are morphologically separable taxa of generic rank. However, I am convinced that *Neobuthus* (with the single species *N. berberensis*) is a synonym of *Butheolus*. Examination of the types of *B. ferrugineus* and *N. berberensis* has revealed no differences that would justify regarding these taxa as separate species. The holotype of *Butheolus ferrugineus* is a small male (21 mm) and the holotype of *Neobuthus berberensis* is a large female (30 mm). The coloration is uniformly yellow. The metasoma and other parts of the body are granulated, and the ventral surface of the first three metasomal segments bears conspicuous paired keels. The fourth metasomal segment may lack keels, although in the FKCP female two keels are evident. The ventral surface of the fifth metasomal segment is densely granulated and without keels, however the segment bears two lateral keels posteriorly equipped with several large, blunt tubercles, some of which Lourenço (2001: 179) described as lobes. Lourenço (2001: 179) listed several differences between *Butheolus* and *Neobuthus*:

(1) "Anterior edge of carapace ± convex in *Butheolus* and straight in *Neobuthus*". I find the anterior edge of the carapace more or less straight in the holotype of *Neobuthus berberensis*, all *Butheolus ferrugineus*, and *B. gallagheri* Vachon, 1980 from Oman.
(2) "Three identical lateral eyes in *Butheolus* and one of the three eyes reduced in *Neobuthus*". I find three identical lateral eyes in the holotype of *Neobuthus berberensis* and specimens of *Butheolus ferrugineus*, and three identical eyes and one reduced eye in *B. gallagheri*.
(3) "Movable fingers of chela with seven rows of granules in *Butheolus* and with five rows of granules in *Neobuthus* (however, in Lourenço's figs. 17 and 19 *N. cloudsleythompsoni* has six rows, whereas on p. 182 it is stated to have five rows)". I find six rows, with partial fusion of rows five and six, in the holotype of *N. berberensis* (on the left movable finger, the right finger is missing), six or seven rows in *Butheolus ferrugineus*, and seven rows in *B. gallagheri*. *B. anthracinus* has as many as nine or ten rows.
(4) "Four accessory granules on the edge of movable finger in *Butheolus* and five accessory granules in *Neobuthus*". I find four accessory granules in the holotype of *Neobuthus berberensis* (on the left movable finger, the right finger is missing) and four or five accessory granules in *Butheolus ferrugineus* and *B. gallagheri*.
(5) "Ventrolateral keels of the fifth metasomal segment non-lobate in *Butheolus* and with three to five lobes in *Neobuthus*". I find several large, blunt tubercles, of which two largest and perhaps two others may be regarded as lobes, in the holotype of *Neobuthus berberensis* and all *Butheolus ferrugineus*, and four or five lobes in *B. gallagheri*.

(6) "Subaculear tooth strong in *Butheolus* and absent in *Neobuthus*". The "tooth" does not resemble a typical subaculear tooth (such as is found in *Lychas* or *Isometrus*) in any of these specimens. It is merely a small tubercle or sometimes a row of tubercles diminishing in size. Such tubercles are present in all examined specimens and their sizes are not taxon-specific.

For the above given reasons I conclude that *Neobuthus* is a synonym of *Butheolus*. However, Lourenço (2001) described *Neobuthus cloudsleythompsoni* (type locality Ethiopia, lower valley of the Omo River) and differentiated it from *N. berberensis* by the presence of three lobate granules on the ventrolateral keels of the fifth metasomal segment. Regrettably, in spite of repeated requests, I have not been granted permission to borrow MNHN types of the species in question, and consequently I can neither place *Neobuthus cloudsleythompsoni* in the key nor unequivocally decide its placement in *Butheolus* or another genus. Therefore, for the purpose of this revision I am left with no option other than to regard the name *Neobuthus cloudsleythompsoni* Lourenço, 2001 as a nomen dubium.

Borelli listed one female of *Neobuthus berberensis* from Somalia (Rahanuin) (Borelli 1919: 365) and one juvenile from Eritrea (Gaarre) (Borelli 1931: 219). Unfortunately, the whereabouts of these specimens remain unknown and determinations thus cannot be verified. The holotype of *Butheolus ferrugineus* is labeled "Nanobuthus andersoni Poc. Typus zu Butheolus ferrugineus Krpl.".

Buthus occitanus berberensis Pocock, 1900
(Fig. 3)

Material examined. **Eritrea**, Karora, 2M4F, leg. L. Cipniani, MZUF. **Ethiopia**, Assab, Scaramucci, 2F(im); Farco Naz, 15.IV.1971, 2juvs, leg. Lanza, Granchi & Azzaroli, MZUF.

Compsobuthus abyssinicus (Birula, 1903)

Material examined. **Ethiopia**, Assab, 1M2F, MZUF; Parco naz Awasc, 9.IV.1971, 1im., 12.IV.1971, 2F, leg. Lanza & Alii, MZUF; Parco naz Awasc, Kudu Track, 10.IV.1971, 1F1juv., leg. Azzaroli, Granchi & Lanza, MZUF; 30 km W Metahara (near Addis Abeba), VIII.1982, 2F, FKCP.

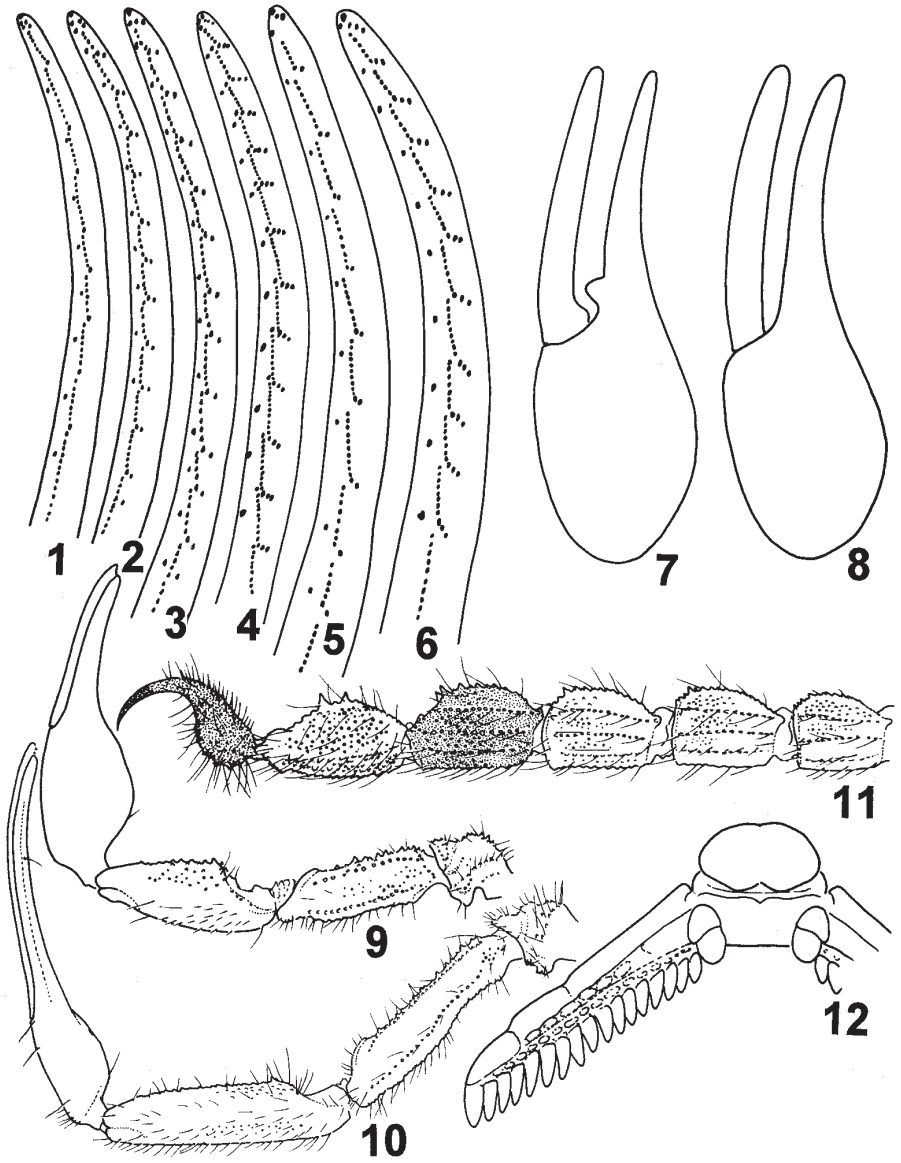
Comments. The original description of *Compsobuthus abyssinicus* (Birula, 1903) does not contain enough information, and I was not able to examine the type. Levy & Amitai (1980: 60, 62) believed this taxon could be a synonym of *C. werneri*. Fet & Lowe (2000: 124) list *C. abyssinicus* from Djibouti, Ethiopia, and Somalia and *C. acutecarinatus* only from Oman and Yemen, although Sissom (1994: 9) identified specimens from Ethiopia as *C. acutecarinatus*. Examination of specimens from Ethiopia and the hitherto published information cause me to suspect that examination of the type specimens will reveal *C. abyssinicus* (Birula, 1903) to be a synonym of *Compsobuthus acutecarinatus* (Simon, 1882).

Compsobuthus maindroni (Kraepelin, 1901)
(Fig. 1)

Material examined. **Ethiopia**, Kudu Valley, Awash Nat. Park, 1000 m, 20.VIII.1976, 3F (det. ?), leg. H. Oboussier & D. Ernst, ZMUH.

Compsobuthus werneri (Birula, 1908)
(Fig. 2)

Material examined. **Somalia**, Bender Cassim, IX.1931, 1F, MZUF.



Figs 1–12. 1–6, movable finger of pedipalp. 1 – *Compsobuthus maindroni* (Kraepelin), female from Oman, FKCP; 2 – *Compsobuthus werneri* (Birula), female from Somalia, MZUF; 3 – *Buthus occitanus* (Amoreux), female from Morocco, FKCP; 4 – *Uroplectes occidentalis* Simon, female from Angola, FKCP; 5 – *Uroplectes pardii* sp. n., male holotype; 6 – *Uroplectes fischeri* (Karsch), female allotype. 7–8, chela, external view. 7 – *Parabuthus granimanus* Pocock, male lectotype of *Parabuthus granimanus fuscicauda* Caporiacco; 8 – *P. leiosoma* (Ehrenberg), male from Ethiopia, FKCP. 9–10, pedipalp, dorsal view. 9 – *P. leiosoma*, male from Ethiopia, FKCP; 10 – *P. eritreaensis* sp. n., male holotype. 11, metasoma, lateral view, *P. eritreaensis* sp. n., male holotype. 12. Pecten, *Uroplectes pardii* sp. n., female allotype.

Hottentotta minax (L. Koch, 1875)

Buthus minax L. Koch, 1875: 4.
Buthus hottentotta tigrinus Caporiacco, 1937: 355; **syn. n.**

Type material examined. **Egypt**, Cairo, 1M1im. (lectotype and paralectotype No. 1 hereby designated), leg. Jickeli, ZMHB No. 2518; Habab, 2M2F (paralectotypes Nos 2–5), leg. Jickeli, ZMHB No. 2519. **Eritrea**, Press Adua, terr. Gherungara, V.1936, 1M (lectotype of *Buthus hottentotta tigrinus* Caporiacco, 1937 hereby designated), MZUF No. 481.
Additional material examined. **Ethiopia**, Adi Ugri, 1900, 1F, MZUF No. 72; Enda Abba Malu, Adi Ugri, 8.VI.1900, 1M2juvs, MZUF No. 73; Ghinda, val. R. Embat Kalla, 29.XII.1900, 8F3juvs, MZUF No. 67, 3F, MZUF No. 69; IV.1901, 1M6F, leg. A. Saganeiti, MZUF No. 63; 1901, 3juvs, leg. A. Saganeiti, MZUF No. 77; Adi Ugri, Sottosassi, V.1901, 3F, MZUF No. 75; Adi Ugri, VI.1901, 4M5F9juvs, MZUF No. 68; Enda Abba Mali, terr. Adi Ugri, 8.VI.1901, 2M2F, MZUF No. 73; Adi Ugri, VII.1901, 1M, MZUF No. 64; Adi Ugri, 1M1F6juvs, leg. Andreini, MZUF No. 128; Adi Caie, IV.1902, 3F, MZUF No. 66, 2F2juvs, MZUF No. 71, V.1902, 1F, MZUF No. 103, V. 1902, 1F, VI.1902, 1M, MZUF No. 106, VII.1902, 1F, MZUF No. 74.

Comments. A thorough examination of the types of *Hottentotta minax minax* (L. Koch, 1875) and *H. m. tigrinus* (Caporiacco, 1937) has revealed no differences that would justify separation of these two taxa as either species or subspecies. To the contrary, seeing a number of specimens in a fair range of sizes convinces me that this is just one variable species.

However, the *Hottentotta minax* complex includes two other taxa, *H. m. niloticus* Birula, 1928 and *H. m. occidentalis* (Vachon & Stockmann, 1968), which do not occur in the studied region. I (FKCP) have a male from Sudan about which I am convinced that it is *Hottentotta niloticus* Birula, 1928 **stat. n.**, a species which differs from *H. minax* chiefly in the adult male manus being markedly broader than that of the female. In the types and other examined specimens of *H. m. minax* and *H. m. tigrinus* the width of the manus of pedipalp is the same in both sexes, the only difference being that the male of *H. minax* has the base of the fingers twisted, whereas the female has it straight. This contradicts Vachon & Stockmann (1968), whose conclutions, however, cannot be considered reliable because their characterization of *H. m. minax* is based on specimens from Sudan, Wad Medani, and does not even mention the type of *H. minax* from Egypt (ZMHB).

The lectotypes are being designated in order to stabilize the nomenclature.

Hottentotta polystictus (Pocock, 1896)

Type material examined. **Somalia**, Goolis Mountains, inland of Berbera, 2F1im (holotype and paratypes), leg. E. Lort Phillips, BMNH No. 1895.6.1.46–7.
Additional material examined. **Ethiopia**, Assab, 2F3im., 1940, FKCP. **Somalia**, 1F1juv., MZUF; tra Villabruzzi e Bolo Burti 100 km, 14.VII.1962, 1M1juv., leg. Lanza, MZUF; Mogadiscio, 1962, 1M1F1juv., MZUF; Vittoria d'Africa, 29.IV.1968, 2F, leg. Lanza, MZUF; Bud Bud, 15.VIII.1968, 22F5M5juvs, 16.VIII.1968, 2F, 16.–17.VIII.1968, 1M, 17.VIII.1968, 1F, MZUF; Run (Valle del Nogal), VIII.1969, 1M, MZUF; Oasi di Galgala, X.1973, 14F2M19juvs and 21juvs before first ecdysis, MZUF. 1F(im.) without locality, MZUF.

Hottentotta scaber (Ehrenberg, 1828)

Type material examined. **Ethiopia**, Arkiko (Abyssinia), 2F (syntypes) leg. Ehrenberg, ZMHB No. 130.

Hottentotta trilineatus (Peters, 1862)

Centrurus trilineatus Peters, 1862: 516.
Buthus eminii Pocock, 1890: 98 (syn. by Kraepelin, 1899: 21).
Buthus fuscitruncus Caporiacco, 1936: 136; **syn. n.**

Type material examined. **Mozambique**, Tette, 1F (holotype), leg. W. Peters, ZMHB No. 2328. **Kenya**, South shore of Victoria Nyanza, 1M (holotype of *Buthus eminii* Pocock, 1890), BMNH No. 90.4.15.2. **Somalia**, Belet Amin, 1M (holotype of *Buthus fuscitruncus* Caporiacco, 1936), VII.1934, MCSN.
Additional material examined. **Ethiopia**, Assab, 1M3F1juv. before first ecdysis, MZUF; Dongollo, 20.–30.XII.1900, 1F, MZUF; Ghenafena (Serae), V.1901, 1juv., MZUF; V. 1901, 1M1F, MZUF; Belet Amin, VII.1934, 2M1F, MZUF No. 83; Amba Mussolinii, 12.II.1937, 1M, MZUF; Neghelli, 1938, 1F, MZUF; Missione Biologica, Sagan Omo, leg. Zavattari: Dancle, 23.III.1939, 1F, El Bano, 1juv., 30.IV.1939, 2M1F2juvs, 2.V.1939, 1F, 5.V.1939, 1M4F1juv., 9.V.1939, 2juvs, 30.V.1939, 1F, 7.VI.1939, 2M1F1juv., 10.VI.1939, 2F, VI.1939, 1M1F2juvs, El Meti, 14.V.1939, 1M1F2juvs, El Dire, 15.–18.V.1939, 2F5juvs, Gondaraba, 2.VI.1939, 1juv., 10.VI.1939, 1M1juv., 13.VI.1939, 1F, 18.VI.1939, 1M2juvs, Gongabacno, 17.VI.1939, 1F, Caschei, 10.VII.1939, 1M3F, MZUF; Yambo, 2M2F, IV.1995, leg. R. Lízler, FKCP; Kersabor, V. 1996, 1F, leg. R. Lízler, FKCP; Gemu Gofa, Arba Minch, 2–3.V.1997, 2F, leg. Werner, FKCP; Sidamo, near Negele borana, 7.–8.V.1997, 1M1juv., leg. Werner & Lízler, FKCP; Wachile-Yavello, Sidamo, 1M, 28.–29.IV.1998, leg. Werner, FKCP. **Somalia**, 7F; Aoi, 1.V.1937, 1F, MZUF; Afgoi, 13.VII.1959, 1F, MZUF; Gelib, 1962, 1M, MZUF; Bur Dinsor dra 300e, 370 m, 19.VII.1962, 1juv., leg. B. Lanza, MZUF; 2 km dopo Mahas, 3.VIII.1969, 1juv., MZUF; Giohar, 8.VIII.1970, 1M4F, MZUF; ca 50 km da chisimaio renenro da Badadda, 14.VIII.1970, 3F1juv., MZUF; Chisimajo Duna, 20.VIII.1970, 1F, MZUF; Afgoi, 1970, 1M, leg. Simonette, MZUF; Sar Uanle, 1M, XI.1971, 1M, IX.1972, 1M1F, VA 1390, 7.VI.1973, 1F, 11.VIII.1975, 2F, 14.VIII.1975, 1F, VIII.1975, 2F, 1.VIII.1975, 1F, XI.1976, 1M; Bur Dinsor, 3.VI.1978, 1M1F1juv., MZUF; Baidoa, 12.–28.VI.1978, 3M4F, MZUF; Berdale, 13.VI.1978, 1M4F1im., MZUF; El Ure, 16 km da Vegit sulla Dista per lug, 16.VI.1978, 1M1F, MZUF; Edain Cabda, 18.VI.1978, 2M1F2juvs, MZUF; Arbasala, 65 km NW Iscia Baidoa, 25.VI.1978, 1F1juv., MZUF; Beledweyne env., VI.1980, 2M4F, leg. Dorsak, FKCP.

Comments. I have examined many specimens brought by Czech entomologists from Kenya and Tanzania, as well as those from Somalia and Ethiopia deposited in Italian museums. This species was based on a female. *Buthus fuscitruncus* Caporiacco, 1936 was based on an adult male that has a wide manus of pedipalp, wider than e. g. the male holotype of *Buthus eminii* Pocock, 1890. However, it is undoubtedly the same species, and *Buthus eminii* Pocock, 1890 and *Buthus fuscitruncus* Caporiacco, 1936 are synonyms of *Hottentotta trilineatus* (Peters, 1862).

Isometrus maculatus (De Geer, 1778)

Material examined. **Ethiopia**, Abyssinia, 1905, 1F, ZMHB. **Somalia**, Belet Amin, VII.1934, 1im., leg. S. Patrizi, MZUF.

Lanzatus somalicus Kovařík, 2001

Type material examined. **Somalia**, Gesera's mangrove, 01°57'N – 45°11'E, 2 m a.s.l., VIII.1975, SBS (Spedizione Biologica Somalia), 1M (holotype), MZUF No. 540; 04°30'N – 45°44'E, 268 m a.s.l., 3.VIII.1969, 1im.M (paratype), SBS, leg. B. Lanza, FKCP.

Leiurus quinquestriatus Ehrenberg, 1828

Material examined. **Somalia**, 115 km oltre Garoe, 4.X.1973, 1F, MZUF; Sar Uanle, 1im, MZUF.

Lychas asper (Pocock, 1891)

Type material examined. **Tanzania**, Centr. Africa, Kawende, 3F (lectotype designated by Kovařík (1997a), therefore No. 3 and 4 of *Lychas asper obscurus* Kraepelin, 1913 become paralectotypes), leg. P. Reinhardt, ZMHB No. 7591; D. O. Afrika, 1M(im.) (paralectotype No. 1 of *Lychas asper obscurus* Kraepelin, 1913), leg. Glanning, ZMHB No. 8147; Tanzania-see, 1M(im.) (paralectotype No. 2 of *Lychas asper obscurus* Kraepelin, 1913), leg. Böhm, ZMHB No. 10426; D. O. Afrika, Mkalama, X.1912, 1F (paralectotype No. 5 of *Lychas asper obscurus* Kraepelin, 1913), leg. Obst. No. 471, ZMUH; D. O. Afrika, Mkalama, X.1912, 1M (paralectotype No. 6 of *Lychas asper obscurus* Kraepelin, 1913), 1F (paralectotype No. 7 of *Lychas asper obscurus* Kraepelin, 1913),

leg. Obst, ZMUH. **Zambia**, N. W. Rhodesia, Brooken Hill, 20.IV.1911, 2F (paralectotypes Nos 8–9 of *Lychas asper obscurus* Kraepelin, 1913), leg. P. Timmen, ZMUH.
Additional material examined. **Somalia**, Sar Uanle, 13.X.1971, 1juv., VIII.1975, 1F, MZUF.

Lychas obsti Kraepelin, 1913

Type material examined. **Kenya**, O. Afrika, 1F (paralectotype No. 1), leg. Kolb, ZMHB No. 8148. **Tanzania**, D. O. Afrika, Kilimatinde, 3.II.1912, 1F (lectotype designated by Kovařík (1997a)), leg. Dr. Obst, ZMUH.
Additional material examined. **Ethiopia**, Missione Biologica, Sagan Omo, leg. Zavattari: Caschei, 5.VII.1939, 1F, El Banno, V. 1939, 1F, 5.V.1939, 1M, Murle, 26.VI.1939, 1M1F(im.), MZUF.

Microbuthus pusillus Kraepelin, 1898

Type material examined. **Djibouti**, Gulf of Aden, Tadjura Bay, 1M (holotype), ZMUH.

Nanobuthus andersoni Pocock, 1895

Type material examined. **Sudan**, Duroor, 60 miles N of Suakin, 1F (holotype), BMNH No. 1894.11.2.39.

Comments. Birula (1917: 215) listed this species for Somalia without any precise data. Since its taxonomic position is questionable and it can be easily confused with other species, namely of the genus *Butheolus*, I consider its occurrence unproven also in Djibouti.

Orthochiroides vachoni Kovařík, 1998

Type material examined. **Somalia**, Sar Uanle, about 20 km South from Chisimaio, 00°29'48"S – 42°25'30"E, (for locality details see Messana et al. 1977 and Vanini et al. 1977), 18M (holotype and paratypes Nos 1–17), 11F (allotype and paratypes Nos 18–27), 9 juvs (paratypes Nos 28–36). Holotype (No. 533), allotype (No. 537), and paratypes Nos 1–9, 20–29, 31–35 (No. 539) are in MZUF. Other paratypes are in BMNH, FKCP, MNHN, NMPC, SMFD, ZMHB, ZMUH (see Kovařík 1998b).

Parabuthus eritreaensis sp. n.
(Figs 10 and 11, Table 2)

Type locality and type depository. Eritrea, Asmara env.; FKCP.

Type material. **Eritrea**, Asmara env., 1M (holotype) 1F (allotype), 1983, leg. Dorsak; FKCP.

Etymology. Named for its geographic distribution.
Diagnosis. Adults from 71.5 mm (male holotype) to 85.6 mm (female allotype) long. Base color uniformly yellow to yellowish brown, only fourth metasomal segment and telson dark. Pectinal teeth number 35–36 in female and 39 in male. Stridulatory area on dorsal surface of first to third segments, more pronounced on first and second segments. Movable finger of pedipalp more than twice as long as manus, bears 13 rows of granules which include external and internal granules. Manus of pedipalp of both sexes smooth and very narrow.
Description of holotype. Adult male holotype is 71.5 mm long. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 2.

Coloration. The base color is uniformly yellow to yellowish brown. Only the fourth metasomal segment and telson are dark (Fig. 11).

Mesosoma. The first to sixth tergites are granulated and bear median keels. The seventh tergite is granulated and pentacarinate, with the median keel very short, composed of only few granules,

Table 2. Measurements of new species (in mm)

		Parabuthus eritreaensis sp. n.		*Uroplectes pardii* sp. n.		*Pandinus eritreaensis* sp.n.
		male, HT	female, AT	male, HT	female, AT	male, HT
total	length	71.5	85.6	30.8	38.1	73
carapace	length	7.5	9.5	3.0	3.6	12.6
	width	7.4	9.4	2.8	3.6	11.1
metasoma and telson	length	43.5	48.9	18.4	20.6	33.0
segment I	length	5.6	6.6	2.5	2.7	4.1
	width	5.2	6.6	1.5	1.9	4.6
segment II	length	6.4	7.4	2.9	3.0	4.7
	width	5.5	6.9	1.5	1.8	4.3
segment III	length	6.6	7.5	3.0	3.2	5.0
	width	5.7	7.1	1.5	1.8	4.0
segment IV	length	7.6	8.6	3.4	3.7	5.6
	width	5.8	7.1	1.5	1.8	3.7
segment V	length	8.4	9.6	3.5	4.0	6.6
	width	5.3	6.4	1.5	1.8	3.3
telson	length	7.9	9.3	3.2	3.7	–
pedipalp						
femur	length	7.6	8.7	2.8	3.2	8.3
	width	1.3	1.9	0.8	0.9	4.0
patella	length	8.6	9.6	3.2	3.9	10.3
	width	2.2	2.8	1.1	1.3	4.6
tibia	length	13.5	15.2	5.7	6.9	18
manus	width	2.2	2.1	1.1	1.4	11.5
finger mov.	length	9.7	11.2	3.8	4.4	11.9
pectinal teeth		39:39	36:35	16:–	18:18	16:16

and barely noticeable. The seventh mesosomal segment is ventrally without keels and granules, but has an uneven, bumpy surface. The pectinal tooth count is 39 in the male holotype.

Metasoma. The first to fourth metasomal segments have a total of 10 keels. The fifth segment has four or five keels, its ventral surface is granulated, and the median keel may not be always noticeable among the granules. All the segments are variously granulated. Dorsolateral keels of the third and fourth metasomal segments terminate in sharp teeth of which the last one is the largest, and those of the fifth segment bear two large teeth (Fig. 11). The stridulatory area is located on the dorsal surface of the first to third segments. It is more pronounced on the first and second segments where it reaches to their posterior margins, and less pronounced and narrow on the third segment, where it does not reach the posterior margin.

Pedipalps. The trichobothrial pattern is type A, orthobothriotaxic (Vachon, 1974). Dorsal trichobothria of the femur are arranged in the basic trichobothrial pattern alfa (Sissom 1990: 70, fig. 3.3). The movable finger of pedipalp is more than twice as long as the manus and bears 13 rows of granules which always include external and internal granules. The manus of pedipalp is smooth and very narrow (Fig. 10).

Affinities. The described features distinguish *Parabuthus eritreaensis* sp. n. from all other species of the genus. They are recounted in the key below. *P. eritreaensis* sp. n. seems to be closest to *P. heterurus* and *P. leiosoma*, from which it differs in proportions and longer chela of pedipalps, namely in males (Figs 9 and 10). From *P. leiosoma* it also differs in having the fifth metasomal segment yellow (Fig. 11); *P. leiosoma* has it black.

Parabuthus granimanus Pocock, 1895
(Fig. 7)

Parabuthus granimanus Pocock, 1895: 311.
Parabuthus granimanus fuscicauda Caporiacco, 1947: 228; **syn. n.**

Type material examined. **Somalia**, Zeyla, 1M1F (lectotype and paralectotype hereby designated), BMNH. **Eritrea**, dint. Elghena (Hassi Habab), XI.–XII.1902, 1M1F (lectotype and paralectotype of *Parabuthus granimanus fuscicauda* Caporiacco, 1947 hereby designated), MZUF, Nos 548 and 549.

Comments. I examined the types of *Parabuthus granimanus* Pocock, 1895 and *Parabuthus granimanus fuscicauda* Caporiacco, 1947, and found no evidence that these specimens belong to two subspecies. Therefore, I am convinced that *Parabuthus granimanus fuscicauda* Caporiacco, 1947 is a synonym of *Parabuthus granimanus* Pocock, 1895. The lectotypes are being designated in order to stabilize the nomenclature.

Parabuthus heterurus Pocock, 1897

Parabuthus heterurus Pocock, 1897: 402.
Parabuthus stefaninii Caporiacco, 1927: 58; **syn. n.**

Type material examined. **Somalia**, Schebegh River, 1M (paralectotype dsg. by Prendini, 2000) 1F (lectotype dsg. by Prendini 2000), BMNH.
Additional material examined. **Ethiopia**, Sagan-Omo, Neghelli, 15.III.1937, 1M1juv., leg. E. Zavattari, MZUF. **Somalia**, El Ueene, 03°49'N 47°13'E, VI.1980, 1Mim., leg. Dorsak, FKCP; Afgooye env., X. 1980, 1M, FKCP.

Comments. The type repository of *Parabuthus heterurus stefaninii* Caporiacco, 1927 was not known to Fet & Lowe (2000: 204), and I could not find it either. I did locate two specimens at in MZUF determined as *Parabuthus heterurus stefaninii*, but they turned out to be *Parabuthus leiosoma*. Published information causes me to suggest that this taxon could be a synonym of *Parabuthus heterurus* Pocock, 1897. Apart from the original description and various subsequent references to it, no other epecimens have been recorded in the literature.

Parabuthus leiosoma (Ehrenberg, 1828)
(Figs 8 and 9)

Androctonus (*Prionurus*) *leiosoma* Ehrenberg in Hemprich et Ehrenberg, 1828: pl. 2, fig. 5; Hemprich & Ehrenberg, 1829: 357.
Parabuthus abyssinicus Pocock, 1901: 1; **syn. n.**
Parabuthus liosoma dmitrievi Birula, 1903: 113; **syn. n.**

Type material examined. Arabia, 1F (holotype), ZMHB.
Additional material examined. **Djibouti**, Day, 14.VII.1990, 1M, 1.VI.1990, 1F, FKCP. **Eritrea**, Karora, 1M1F, leg. L. Cipriani, MZUF. **Ethiopia**, Missione Biologica, Sagan Omo, leg. Zavattari: Calam, VIII.1939, 1M, Elolo, 31.VII.1939, 2F, 7.VIII.1939, 1M, 10.VIII.1939, 1juv., Gondaraba, 30.V.1939, 1M1juv., 2.VI.1939, 1M, 3.VI.1939, 1M, 4.VI.1939, 1M, 10.VI.1939, 1M1juv., 17.VI.1939, 1F, 18.VI.1939, 1M1F1im., 24.VI.1939, 1M1F, 26.VIII.1939, 1F, MZUF; Parco Nazionale Awasc, pendici NNW del Monte Fantale, 1120 m, 4M4F3ims., MZUF; Illala Sala Awash Nat. Park, 1F, 11.XI.1980, leg. A. Demeter, HNHM; Sodora, 1400 m, 3F, IV.1994, leg. R. Lízler, FKCP; Shoa prov., Metehara, 18.IV.1998, 1F, leg. Werner, FKCP; Nazareth, Melcassa, IX.2000, 1F, FKCP. **Somalia**, Afgoi ?, 14.IV.1976, 1F (det. ?), leg. Fagotto, MZUF.

Comments. Two subspecies were described. The types of *Parabuthus leiosoma abyssinicus* Pocock, 1901 should be in BMNH which has informed me that they are not there, and I have been unable to examine the types of *Parabuthus leiosoma dmitrievi* Birula, 1903 either. Specimens in Italian

museums labeled as *P. l. abyssinicus* or *P. abyssinicus* all are *P. leiosoma*, and in my opinion the two subspecies are synonyms.

Parabuthus pallidus Pocock, 1895

Parabuthus pallidus Pocock, 1895: 312.
Parabuthus mixtus Borelli, 1925: 13; **syn. n.**
Parabuthus mixtus obscurior Caporiacco, 1941: 34; **syn. n.**
Parabuthus zavattarii Caporiacco, 1939: 305; **syn. n.**

Type material examined. **Ethiopia**, Sagan-Omo, El Banno, 2.V.1939, 1F1im. (lectotype and paralectotype No. 1 of *Parabuthus mixtus obscurior* Caporiacco, 1941 hereby designated), leg. E. Zavattari, rev. M. Vachon (VA 1578), MZUF No. 547. **Somalia**, Balad, 2F (lectotype and paralectotype of *Parabuthus mixtus* Borelli, 1925 hereby designated), MCSN.
Additional material examined. **Ethiopia**, Sagan-Omo, El Dire, 21.V.1939, 2juvs, leg. E. Zavattari, rev. M. Vachon (VA 1581), MZUF; Elghena (Bassi Habab), XI.–XII.1902, 2juvs (defect, det.?), leg. Andreini, MZUF; Dacanamo, XII.1902, 1M, leg. A. Andreini, MZUF; Missione Biologica, Sagan Omo, El Bano, 30.IV.1939, 1juv., leg. Zavattari, MZUF; El Dire, 15.–18.V.1939, 4F2juvs, MZUF; Parco naz Awasc, 10.IV.1971, 1M4juvs, leg. Azzaroli & Alii, MZUF; Missione Biologica, Sagan Omo, leg. Zavattari: Asile, 23.VI.1939, 1F, Caschei, 12.VII.1939, 1M2im., El Bano, 30.IV.1939, 2juvs, 5.V.1939, 1F, 9.V.1939, 1F, 10.V.1939, 2F, 7.VI.1939, 1F4juvs, El Dire, 15.–18.V.1939, 6F1juv., Elolo, 10.VIII.1939, 1F, Gondaraba, 9.V.1939, 1M, Gongabacno, 17.VI.1939, 1M1juv., Sagan, 7.VI.1939, 1im., MZUF; Gemu Gofa prov., near Konso, 30.IV.–2.V.1998, 1F, leg. Werner, FKCP. **Somalia**, Sar Uanle, 1juv. MZUF; Afgoi, 1978, 1M, leg. Simonetta, MZUF; Ul Vaene (ex El Apsughe), 03°49'N 47°13'E, 26.XI.1982, 1M, MZUF.

Comments. I have examined many specimens brought by Czech entomologists from Kenya and Tanzania, as well as those from Somalia and Ethiopia deposited in Italian museums. This species is variable in granulation of metasomal segments (stridulation area on the third metasomal segment is always less extensive than on the first two segments and never reaches the posterior margin of the segment, but may be composed of a varying number of granules) as well as in overall size (adult males may be 45 – 70 mm long) and proportions (namely width/length ratio of metasomal segments). I am therefore convinced that it is a single species, i. e. that *Parabuthus mixtus* and *P. m. obscurior* are synonyms of *P. pallidus*, and that most likely *P. zavattarii*, whose type could not be found in MCSN, MIZT and MZUF, should also be included in the synonymy. It is excedingly unlikely that this type could be in another museum. Much of Prof E. Zavattari's collection is in MZUF which also has nearly all the scorpions included in the paper by Caporiacco (1939), where *P. zavattarii* is described based on one female. This holotype can be considered lost.

The lectotypes are being designated in order to stabilize the nomenclature.

Somalibuthus demisi Kovařík, 1998

Type material examined. **Somalia**, Sar Uanle, about 20 km South from Chisimaio, 00°29'48"S – 42°25'30"E (for locality details see Messana et al. 1977 and Vanini et al. 1977), 1F (holotype), 16.XI. probably 1971, MZUF, 2 juvs (paratypes Nos 1–2) 31.V.1973, MZUF and FKCP.

Somalicharmus whitmanae Kovařík, 1998

Type material examined. **Somalia**, El Meti, 1M (holotype), MZUF.

Uroplectes fischeri (Karsch, 1879)
(Fig. 6)

Lepreus fischeri Karsch, 1879: 124.

Uroplectes fischeri caporiaccoi Fet, 1997: 247 (replacement name for *Uroplectes fischeri intermedius* Caporiacco, 1941: 35 (preocc. by *Uroplectes intermedius* Tullgren, 1907); **syn. n.**
Uroplectes patrizii Caporiacco, 1936: 137; **syn. n.**

Type material examined. **Ethiopia**, Missione Biologica, Sagan Omo, El Dire, 21.V.1939, 1F (holotype of *Uroplectes fischeri caporiaccoi* Fet, 1997, replacement name for *Uroplectes fischeri intermedius* Caporiacco, 1941), leg. Zavattari, MZUF. **Somalia**, Barawa, 1M1F (lectotype and paralectotype No. 1), leg. Fischer, ZMHB.
Additional material examined. **Somalia**, Villagio Duga dagli Abruzzi, 2F (det. as *U. patrizzii*), MZUF; Bur Dinsor, 3.VI.1978, 1juv., MZUF; Edain Cobdsa, 18.VI.1978, 1F, MZUF.

Comments. FitzPatrick (2001: 191) synonymized *Uroplectes fischeri caporiaccoi* Fet, 1997 with *Uroplectes vittatus* (Thorell, 1877), I assume without seeing the female holotype of *U. f. caporiaccoi* whose whereabouts Fet & Lowe (2000: 268) list as unknown. I found this female while revising the MZUF collection and feel certain that it is a synonym of *Uroplectes fischeri*. I was not able to find the female holotype of *Uroplectes patrizii* Caporiacco, 1936, which Fet & Lowe (2000: 273) list as in MCSNG (= MCSN), where it is not to be find (written comm.) and evidently has been lost. I based the synonymy of *Uroplectes patrizii* with *Uroplectes fischeri* on identification of MZUF specimens, which were originally identified as *Uroplectes patrizii* and which I regard as *Uroplectes fischeri*.

Uroplectes pardii sp. n.

(Figs 5, 12–13, Table 2)

Type locality and holotype depository. **Somalia**, Eggi (a N di Mahaddei); MZUF.

Type material. **Somalia**, Eggi (a N di Mahaddei), 22–24.VIII.1962, SBS, 1M (holotype), MZUF; Beledweyne env., VI.1980, 1F (allotype), leg. Dorsak, FKCP; Edain Caboba, 1978, 1F (paratype No. 1), FKCP; Run (Garoe), 5.VIII.1964, SBS, 1M (paratype No. 2), MZUF.

Etymology. Named after Leo Pardi (1915–1990), an Italian biologist who did much for biological exploration of Somalia.
Diagnosis. Adults 30–38.1 mm long. Third and fourth legs bear tibial spurs. Ventral side of cheliceral fixed finger smooth, without nodules or denticles. Three pairs of lateral eyes. Base color uniformly yellow or yellowish brown. Mesosoma with two narrow, dark longitudinal bands. Carapace anteriorly with pronounced dark triangle and pigmentation on eyes. Tibia and patella of pedipalp yellow, manus dark, and fingers yellowish brown, lighter than manus. First to fourth metasomal segments yellow, fifth segment and telson dark. Pectinal teeth number 16–18 in males and 18 in females. Shape of first pecten in female and its size relative to other pectens are shown in Fig. 12. Movable fingers of pedipalps bear 10 or 11 rows of granules which terminate in two larger granules, one of them external, below which may be another very small granule placed outside of row.
Description of holotype. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 2. Habitus is shown in Fig. 13.

Coloration. The base color is uniformly yellow or yellowish brown. The mesosoma has two longitudinal, narrow, dark bands. The carapace has a pronounced dark triangle anteriorly and pigmentation on eyes. The tibia and patella of pedipalp are yellow, the manus is dark, and the fingers are yellowish brown, lighter than the manus. The first to fourth metasomal segments are yellow, whereas the fifth metasomal segment and the telson are dark.

Carapace. It is without keels and smooth, with only a few minute granules. The anterior margin bears a median concavity. There are three pairs of lateral eyes.

Mesosoma. The first to sixth tergites are smooth and bear one median, non-granulated keel. The seventh tergite lacks keels and has several minute granules. The pectinal tooth count is 16. The sternites are smooth, without keels.

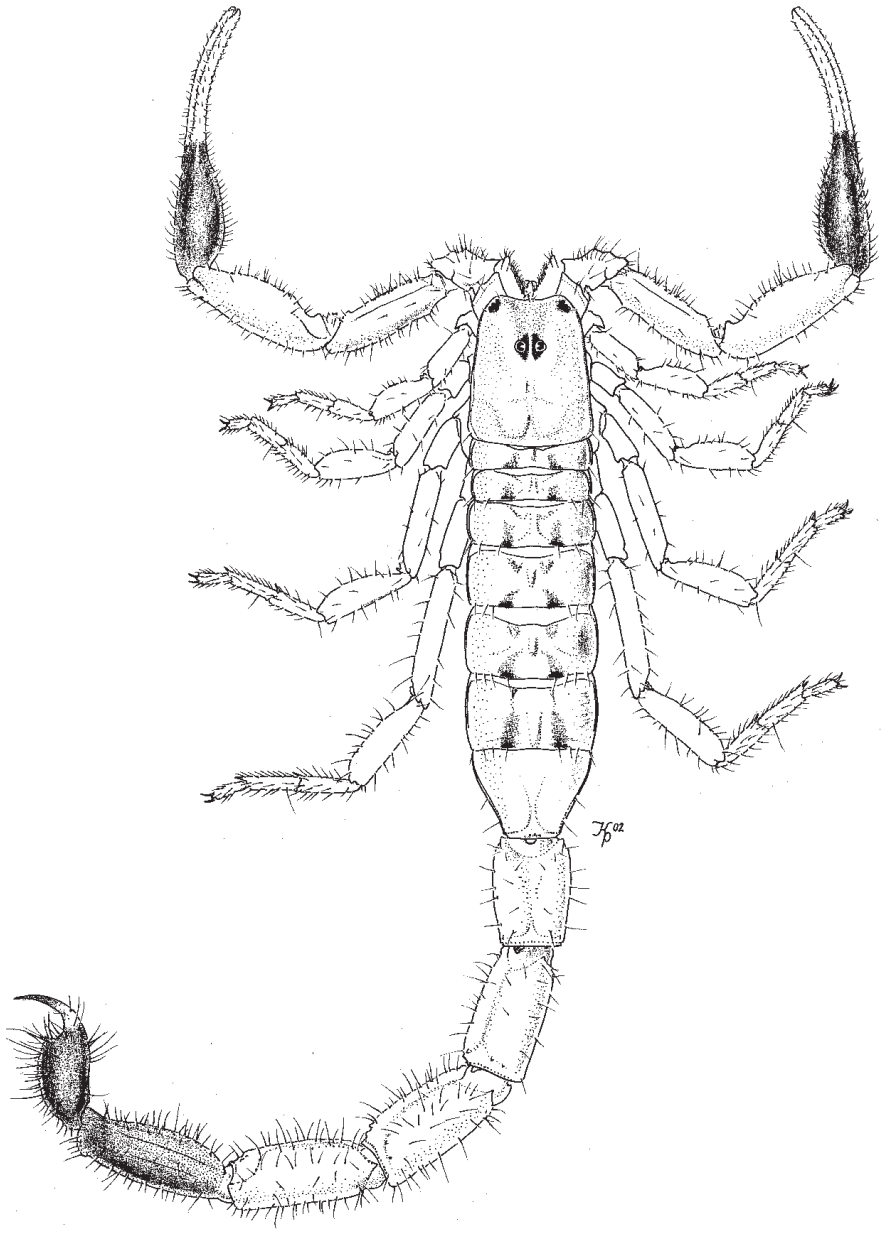


Fig. 13. *Uroplectes pardii* sp. n., male holotype, dorsal aspect; illustration lacks chelicerae which are detached and stored in a separate vial.

Metasoma. The segments are smooth, without keels, posteroventrally each with four symmetrical granules. Punctation is not as pronounced as in *U. fischeri* and may be absent. The segments and the telson bear numerous bristles of varying length. The telson has a rounded subaculear tooth.

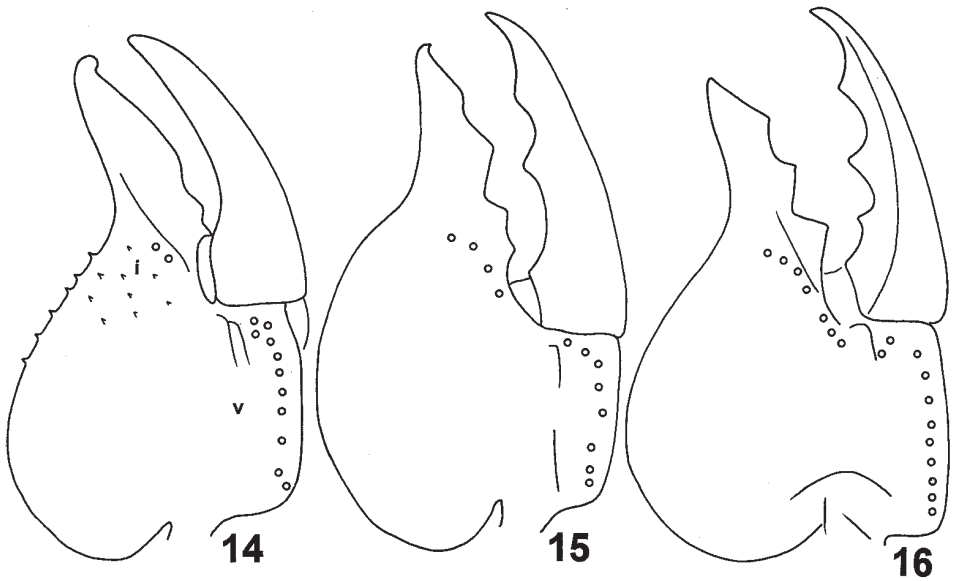
Pedipalps. The trichobothrial pattern is type A, orthobothriotaxic (Vachon 1974). The dorsal trichobothria of the femur are arranged in the basic trichobothrial pattern alfa (Sissom 1990: 70, Fig. 3.3). The femur, patella and chela are smooth, without keels. The movable fingers of pedipalps bear 10 rows of granules which always terminate in two larger granules, one of them external (Fig. 5), below which may be another, very small granule placed out of the row.

Affinities. The described features distinguish *Uroplectes pardii* sp. n. from all other species of the genus. They are recounted in the key below. *U. pardii* sp. n. is closest to *U. fischeri* and *U. vittatus*, from which it differs in lacking the external granule on the movable finger of pedipalp (Figs 5 and 6).

Uroplectoides abyssinicus Lourenço, 1998

Type material examined. **Ethiopia**, region of the Omo river Valley, III.1976, coll. J. Grand, 1F (holotype), ZMUH.

Comments. Lourenço (1998) described the genus *Uroplectoides* with the type species *Uroplectoides abyssinicus* and transferred *U. emiliae* (Werner, 1916) to this new genus. The division of the genus *Uroplectes* into two genera deserves further attention and study of more species. If *Uroplectoides* proves justified, then it should include also *Uroplectes fischeri* (Karsch, 1879) and *Uroplectes chubbi* Hirst, 1911. Especially *Uroplectes fischeri* is very similar to *Uroplectoides abyssinicus*.



Figs 14–16. Chela of pedipalp, ventral and internal views. 14 – *Pandinus* (*Pandinurus*) *exitialis* (Pocock), female holotype of *Scorpio gregoryi*; 15 – *P.* (*Pandinoides*) *cavimanus* (Pocock), male lectotype; 16 – *P.* (*Pandinops*) *eritreaensis* sp. n., male holotype.

Hemiscorpiidae Pocock, 1893

Hemiscorpius socotranus Pocock, 1899

Material examined. **Somalia**, Bender Cassim, IX.1931, 1F, det. Caporiacco, 1947, MZUF.

Liochelidae Fet et Bechly, 2001

Iomachus politus Pocock, 1896

Type material examined. **Ethiopia**, Borana, Neghelli, 10.III.1937, 2juvs (lectotype and paralectotype No. 1 of *Jomachus borana* Caporiacco, 1939), leg. E. Zavattari, MZUF.
Additional material examined. **Ethiopia**, Yambo, 1F, IV.1995, leg. R. Lízler, FKCP; Sidamo, near Negele Borana, 7.V.1997, 1F, leg. R. Lízler, FKCP.

Scorpionidae Latreille, 1802

Pandinus (*Pandinoides*) *cavimanus* (Pocock, 1888)
(Fig. 15)

Type material examined. **Tanzania**, Umyamuezi, 1M (lectotype hereby designated), leg. Captain Speke, BMNH No. 63.66. **Somalia**, Aimola in Boran Country, 1F (holotype of *Pandinus militaris* Pocock, 1900), leg. A. Donaldson Smith, BMNH No. 1897.11.10.4–5.
Additional material examined. **Somalia**, Afgoi, I.–III.1960, 3M1F, leg. Sammickeli, MZUF; Afmedu, 7.VII.1962, 1F, MZUF; Liboye, 29.X.1983, 1M, MZUF.

Comments. The lectotype is being designated in order to stabilize the nomenclature.

Pandinus (*Pandinoides*) *platycheles* Werner, 1916

Material examined. **Ethiopia**, Jerrer Vallis, 3F10juvs, 12.VI.1911, leg. O. Kovács, HNHM.

Pandinus (*Pandinops*) *bellicosus* (L. Koch, 1875)

Type material examined. **?**, Habab, 1M (holotype), leg. Jickeli, ZMHB No. 2521. **Somalia**, Berbera, 16.IV.1897 or Hargaisa, 1 specimen (holotype of *Pandinus pugilator* Pocock, 1900), leg. Peel, BMNH.
Additional material examined. **Ethiopia**, Abyssinia, Aegyptom Vagy, 1898, 1M, FKCP. **Somalia**, Gardo (Migiurtina), V. 1930, 1M(?)im., MZUF; Dinsor, 23.VII.1962, 1juv., MZUF.

Pandinus (*Pandinops*) *colei* (Pocock, 1896)

Type material examined. **Somalia**, Goolis Mts, Inland of Berbera, 1F (holotype), leg. E. Lort Phillips, BMNH No. 1895.6.1.48.
Additional material examined. **Ethiopia**, Parco Naz di Awiso, 17.IV., 1M (defective), leg. Granchi, Lanza & Anzaroti, MZUF.

Pandinus (*Pandinops*) *eritreaensis* sp. n.
(Fig. 16, Table 2)

Type locality and type depository. **Eritrea**, Asmara env.; FKCP.

Type material. **Eritrea**, Asmara env., 1M (holotype), 1983, leg. Dorsak.

Etymology. Named for its geographic distribution.

DIAGNOSIS. Male holotype 73 mm long. Chela of pedipalp bears 7 internal and 11 – 13 ventral trichobothria. Base color uniformly brown to reddish brown. Pectinal teeth number 16. Manus of pedipalp lobiform, dorsally with blunt tubercles, ventrally smooth, internally sparsely granulate and with two short keels, each with less than 10 granules. First to fourth metasomal segments with six keels, fifth segment has only three ventral keels complete. Metasomal segments nearly smooth, ventral surfaces of first and second segments uneven but without granules.

DESCRIPTION OF HOLOTYPE. Total length of the male holotype is 73 mm. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 2. The chela of pedipalps bears 7 internal trichobothria (Fig. 16), which characterizes the subgenus *Pandinops* (see Birula, 1913: 419; Birula, 1928: 88; Vachon, 1974: 953). The ventral surface of chela of the left pediapalp bears 11 trichobothria and that of the right pedipalp bears 13 trichobothria. The carapace lacks keels but is granulated, namely on margins. In the center it is almost smooth, with only widely scattered granules.

Coloration. The base color is uniformly brown to reddish brown. The telson and legs are yellow to yellowish brown.

Mesosoma. The mesosoma is smooth, with a median keel. The seventh mesosomal segment is ventrally smooth, with two smooth keels and the surface between them uneven but without granules. The pectinal tooth count is 16.

Metasoma. The first to fourth segments have six keels and the fifth segment has only three ventral keels complete. The segments are nearly smooth, the ventral surfaces of first and second segments are uneven but without granules. Pointed granules cover the ventral surface of third to fifth segments. The sting of the telson is broken off.

Pedipalps. The manus of pedipalps has a lobe (Fig. 16), dorsally bears blunt tubercles, ventrally is smooth, without granules, and its internal surface is sparsely granulate and bears two short, characteristic keels, each of them with less than 10 granules. The femur of pedipalps bears three keels, all composed of unequally sized granules. The patella of pedipalps bears three keels, of which only the dorso-internal is composed of unequally sized granules and the other two are smooth. The dorsal and internal surfaces of the femur are covered by large granules. The external surfaces of the femur and patella are smooth, without granules.

AFFINITIES. The described features distinguish *Pandinus* (*Pandinops*) *eritreaensis* sp. n. from all other species of the subgenus. They are recounted in the key. *P.* (*P.*) *eritreaensis* sp. n. is the only species of the subgenus *Pandinops* Birula, 1913 recorded in Eritrea, which represents the northernmost occurrence of this subgenus. *P.* (*P.*) *eritreaensis* sp. n. is closest to *P.* (*P.*) *peeli*, from which it differs in having the seventh mesosomal and first and second metasomal segments ventrally without granules, instead their surface is only gently uneven. In contrast, *P.* (*P.*) *peeli* has those segments densely granulated and the seventh mesosomal segment is granulated also dorsally.

Pandinus (*Pandinops*) *hawkeri* Pocock, 1900

TYPE MATERIAL EXAMINED. **Somalia**, Jifa Uri, inland from Zeyla, 1F (holotype), BMNH No. 1898.4.25.4–6.
ADDITIONAL MATERIAL EXAMINED. **Ethiopia**, Neghelli, 15.III.1937, 1juv., MZUF.

Pandinus (*Pandinops*) *peeli* Pocock, 1900

TYPE MATERIAL EXAMINED. **Somalia**, Berbera or Hargaisa, 1M (holotype), IV.1895, leg. C.V.A. Peel, BMNH No. 0.3.15.2.
ADDITIONAL MATERIAL EXAMINED. **Somalia**, Sar Uanle, V.–VI.1973, 1im., SBS, MZUF; Afgoi ?, 14.IV.1976, 1im., leg. Fagotto, MZUF.

Pandinus (*Pandinops*) *pococki* Kovařík, 2000

Type material examined. **Somalia**, Geriban env., 9°20'N 48°90'E, VI.1980, 1M (holotype), FKCP.

Pandinus (*Pandinurus*) *exitialis* (Pocock, 1888)
(Fig. 14)

Scorpio exitialis Pocock, 1888: 249.
Scorpio gregorii Pocock, 1896: 432; **syn. n.**

Type material examined. **Ethiopia**, Shoa, 1M (holotype), BMNH. **Kenya**, Kinani, Massailand, 1F (holotype of *Scorpio gregoryi* Pocock, 1896), leg. J. W. Gregory, BMNH No. 1893.11.9.7.
Additional material examined. **Eritrea**, Erythraea, 1juv., SMFD, No. 6706/113; Adi-Morada, 1928, leg. Ignestil, MZUF. **Somalia**, Villaggio Duca degli Abrozzi, V.1928, 1F, MZUF; Mogadiscio, 1M1juv., MZUF; 1934, Pallaci, 1F, MZUF; Belet Amin, VII.1934, 1F1juv., MZUF; Afgoi, 1.III.1960, 1juv., leg. A. Saumicheli, rev. M. Vachon No. VA 1443, MZUF; Baidoa, 1962, 1F, leg. Saposito, rev. M. Vachon No. VA 1439, MZUF; Gelib, 1962, 1im., MZUF; Bur Dinsor, 1962, 2juvs, leg. B. Lanza, MZUF; Eggi, 24.VIII.1962, 2juvs, MZUF; Giohari, 1F, MZUF; Giohari, 29.VIII.1964, 1M, MZUF; Giohari, 27.IV.1968, 1F, leg. B. Lanza, MZUF; Bud Bud, 15.VIII.1968, 3F3F(im.)2juvs, 16.VIII.1968, 1M2F1M(im.)6juvs; Afgoi, 13.I.1977, 1M, 1978, 1M, leg. Simonetta, MZUF; pista Baidoa-Dinsor, 12.VI.1978, 1F(im.), MZUF; Berdale, 13.VI.1978, 2M5F4juvs, MZUF; Edain Caboba, 18.VI.1978, 1F, MZUF; El Condut, 22.VI.1978, 1F10juvs, MZUF; Gavariole, 19.II.1979, 1juv., MZUF; El Derio, 15.XI.1978, 1juv., leg. L. Chelazzi, MZUF.

Comments. Most of *Pandinus* species are based on unique specimens. Since I was able to examine relatively large numbers of specimens in addition to types, I am convinced that *P. gregoryi*, based on a female holotype, is a synonym of *P. exitialis*.

Pandinus (*Pandinurus*) *magrettii* Borelli, 1901

Pandinus magrettii Borelli, 1901: 1.
Brotheas hirsutus L. Koch, 1875: 8; **syn. n.**
Scorpio africanus subtypicus Kraepelin, 1894: 69; **syn. n.**

Type material examined. **Eritrea**, Habab, 1juv. (holotype of *Broteas hirsutus* L. Koch, 1875), leg. Jickli, ZMHB No. 2520.
Additional material examined. **Eritrea**, Dembelas, 1F, VII.1902, det. Borelli, MCSN; Setit, 1F, II.1906, det. Borelli, MCSN; Asmara env., 1F, VII.2002, FKCP.

Comments. In light of the distribution of *Pandinus* (*Pandinus*) *imperator* (C. L. Koch, 1841), it is very unlikely that *P. i. subtypicus* (Kraepelin, 1894) (described as *Scorpio africanus subtypicus*) would be its subspecies and occur in the studied region. Unfortunately, neither the type locality nor type repository are known for this taxon (Fet 2000: 467). The type is not in the German and Italian museums contacted (MCSN, MZUF, SMFD, ZMHB, ZMUH) and no other verified specimens are known, although the species is said to occur in Ethiopia, Somalia and Sudan (Caporiacco 1938: 115). So labeled specimens in Italian museums that I have examined all belong to *Pandinus* (*Pandinurus*) *exitialis* (Pocock, 1888). The reason why I suspect *P. i. subtypicus* could be a synonym of *P.* (*P.*) *magrettii* is Kraepelin's (1894: 70) statement that *Brotheas hirsutus* L. Koch, 1875 is a synonym of *P. i. subtypicus*. Examination of the holotype of *Brotheas hirsutus* (a juvenile 47 mm long, with 20 pectinal teeth) shows it to be *P.* (*P.*) *magrettii*, i. e. a subgenus other than *P.* (*Pandinus*) *imperator*. If Kraepelin was correct and *Brotheas hirsutus* and *P. i. subtypicus* are the same species, then it is *P.* (*P.*) *magrettii*. However, published records of *P. i. subtypicus* from Somalia and Sudan can be accepted only upon their verification, because it is very possible that local populations so labeled in reality belong to other species, most likely to *Pandinus* (*Pandinurus*) *exitialis*.

Pandinus (*Pandinurus*) *meidensis* Karsch, 1879

Type material examined. **Somalia**, Meid, 1F (holotype), leg. Hildebrandt, ZMHB No. 3018.
Additional material examined. **Somalia**, Sar Uanle, about 20 km South from Chisimaio, 00°29'48"S – 42°25'30"E, 2im.3juvs., MZUF; Oasi di Galgala, X.1933, 3M9F8ims.1juv., MZUF No. 1026, 1M2F1im., FKCP.

Pandinus (*Pandinurus*) *pallidus* (Kraepelin, 1894)

Type material examined. **Somalia**, Barava, 2.III.1891, 1M1F (lectotype and paralectotype hereby designated), ZMUH.

Comments. The lectotype is being designated in order to stabilize the nomenclature.

Pandinus (*Pandinus*) *phillipsii* (Pocock, 1896)

Scorpio phillipsii Pocock, 1896: 181.
Pandinus intermedius Borelli, 1919: 375; **syn. n.**
Pandinus citernii Borelli, 1919: 378; **syn. n.**

Type material examined. **Somalia**, Doolob, inland of Berbera, 2F (syntypes), BMNH No. 1895.6.1.49–50. **Somalia**, Dolo, Ganale Doria, III.–IV.1911, 1M1F (lectotype and paralectotype of *Pandinus intermedius* Borelli, 1919 hereby designated), 1M (holotype of *Pandinus citernii* Borelli, 1919), MCSN.

Comments. My examination of all pertinent types indicates that *Pandinus citernii* and *P. intermedius* are synonyms of *P. phillipsii*. The lectotype of *P. intermedius* is being designated in order to stabilize the nomenclature.

Pandinus (*Pandinus*) *smithi* (Pocock, 1897)

Type material examined. **Somalia**, Silul, 1F (lectotype hereby designated), leg. A. Donaldson Smith, BMNH No. 1897.11.10.1–3.
Additional material examined. **? Ethiopia**, Abyssinia, 1F, FKCP.

Comments. The lectotype is being designated in order to stabilize the nomenclature.

Nomina dubia – these species are not included in the checklist and key

Buthus insolitus Borelli, 1925

The type from Somalia that should be in MCSN apparently has been lost. This name could be a synonym of some species of *Hottentotta*, since in the work where it was described Borelli regarded *Hottentotta emini* as *Buthus emini*.

Buthacus frontalis Werner, 1936

The ZMUH holotype (a female from Asmara, Eritrea) was destroyed during the air raid on Hamburg in 1943 (verified by H. Dastych of ZMUH). The original description does not contain diagnostic characters, and no additional specimens are known. Therefore, this name has to be regarded as dubious.

Microbuthus litoralis (Pavesi, 1885)

Microbuthus litoralis was originally described as *Butheolus litoralis*, which is why Kraepelin, when describing the genus *Microbuthus* with the type species *M. pusillus*, did not compare that

species with *Microbuthus litoralis*. *Butheolus litoralis* was transferred to the genus *Microbuthus* by Birula in 1905 (445), who gave as the first distinguishing feature that *Microbuthus litoralis* has sternites densely granulated, whereas *Microbuthus pusillus* has them smooth. However, when examining the holotype of *Microbuthus pusillus* I found its sternites to be densely granulated. Since I have not found the type of *Microbuthus litoralis* and no other specimen is known, I believe these names very likely refer to only one species, by priority *Microbuthus litoralis* (Pavesi, 1885). Since its type is not known and its correct generic placement cannot be decided, I consider the name *Butheolus litoralis* a nomen dubium.

Neobuthus cloudsleythompsoni Lourenço, 2001

See comments under *Butheolus ferrugineus* Kraepelin, 1898.

Hemiscorpius tellinii Borelli, 1904

The MIZT type (a female from Eritrea, Halibaret) could not be located. The original description is lengthy but does not contain unequivocal characters, and no additional specimens are known. Therefore, the species has to be regarded as dubious. However, Graeme Lowe (in litt.) has informed me that he borrowed this type from MIZT in 1997 and came to the conclusion that it is a species different from *H. socotranus*, *H. maindroni* and *H. arabicus*. He is preparing a paper that will contain further information on the genus *Hemiscorpius* including descriptions of new species from Oman.

Pandinus boschisi Caporiacco, 1937

The MSNM holotype (a male from Somalia, El Caiat (Harrara)) could not be located. The original description does not contain characters which would allow to place the species in a subgenus of *Pandinus*, and no additional specimens are known. Therefore, also this species has to be regarded as dubious.

Species whose presence in the region is considered unlikely despite literary records. They are not included in the checklist and key

Orthochirus scrobiculosus (Grube, 1873)

This species has been listed for Djibouti (Kraepelin, 1901: 267) and Somalia (Moriggi, 1941: 90;), however Fet & Lowe (2000: 197) believe it occurs only in Asia, with which I agree. Both mentions of its occurrence in northeastern Africa should be considered erroneous.

Opisthacanthus asper (Peters, 1862)

The only mention of this species in Somalia was made by Pavesi (1897: 158). I was unable to find his or any other specimens in Italian museums and concur with Fet et al. (2000: 405), who considers Pavesi's record doubtful.

Opisthacanthus rugiceps Pocock, 1897

The only record of this species for Somalia was published by Borelli (1931: 219), who listed one juvenile from Gaare, moreover identified as *Opisthacanthus fischeri* Kraepelin, 1911 (synonymized

by Lourenço 1987: 915). I have not found this or any other specimens in Italian museums, and Fet et al. (2000: 406) lists this record as doubtful.

Key to scorpions so far known from Djibouti, Eritrea, Ethiopia, and Somalia

1. Patella of pedipalp without ventral trichobothria. ..... Buthidae 2
– Patella of pedipalp with 3 or more ventral trichobothria. 42
2. Basic trichobothrial pattern is alfa (Sissom 1990: 70, Fig. 3.3). 3
– Basic trichobothrial pattern is beta (Sissom 1990: 70, Fig. 3.3). 13
3. Sternum subpentagonal. 4
– Sternum subtriangular. 5
4. Movable finger of pedipalp longer than manus. ..... ***Butheoloides polisi*** Lourenço
– Movable finger of pedipalp shorter than manus. ..... ***Somalicharmus whitmanae*** Kovařík
5. Ventral side of cheliceral fixed finger smooth, lacking denticles. 6
– Ventral side of cheliceral fixed finger with 2 denticles. ..... ***Parabuthus*** Pocock 9
6. At least 2nd through 5th rows of granules on movable fingers of pedipalps with diagonal terminations of 4 larger granules, 3 situated externally and one internally (Fig. 4). ..... ***Uroplectes occidentalis*** Simon
– Rows of granules on movable fingers of pedipalps terminate in 2 or 3 slightly larger, externally situated granules (Figs 5 and 6). 7
7. Rows of granules on movable fingers of pedipalps terminate in 2 external granules (Fig. 5). .... ***Uroplectes pardii*** **sp. n.**
– Rows of granules on movable fingers of pedipalps terminate in 3 external granules (Fig. 6). 8
8. Manus of pedipalp yellow, lighter than fingers and as light as patela and tibia. .... ***Uroplectes fischeri*** (Karsch)
– Manus and fingers of pedipalp reddish brown, darker than patela and tibia. .... ***Uroplectoides abyssinicus*** Lourenço
9. All metasomal segments yellow or yellowish brown. ..... ***Parabuthus pallidus*** Pocock
– Fourth metasomal segment and telson black. 10
10. Fifth metasomal segment yellow or yellowish brown (Fig. 11). 11
– Fifth metasomal segment black. 12
11. Movable finger of pedipalp more than twice as long as manus. Manus of pedipalp of male very narrow (Fig. 10). ..... ***Parabuthus eritreaensis*** **sp. n.**
– Movable finger of pedipalp only slightly longer than manus. Manus of pedipalp of male broad (Fig. 9). .... ***Parabuthus heterurus*** Pocock
12. Fingers of pedipalps of male with a tubercle on inner side of base (Fig. 7). ..... ***Parabuthus granimanus*** Pocock
– Fingers of pedipalps of male with inner side of base plain, no trace of tubercle (Fig. 8). .... ***Parabuthus leiosoma*** (Ehrenberg)
13. Third and fourth legs without tibial spurs. 14
– Fourth or third and fourth legs with well developed tibial spurs. 16
14. Telson with a subaculear tooth or tubercle. ..... ***Isometrus maculatus*** (De Geer)
– Telson without a subaculear tooth or tubercle. 15
15. Movable finger of pedipalp with 6 rows of granules which do not form diagonal rows and external or internal granules (see Fig. 8 in Lourenço 2001: 19)..... ***Sabinebuthus elegans*** Lourenço
– Movable finger of pedipalps with 7 rows of granules which form diagonal rows and have external and internal granules (see Fig. 6 in Kovařík 2001: 44). ..... ***Lanzatus somalicus*** Kovařík
16. Fourth legs with well developed tibial spurs, third legs without tibial spurs. ..... ***Babycurus*** Karsch 35
– Both third and fourth legs have well developed tibial spurs. 17
17. Dentate margin of pedipalp-chela movable finger with distinct granules not divided into rows and limited to distal half of finger. ..... ***Microbuthus pusillus*** Kraepelin
– Dentate margin of pedipalp-chela movable finger with distinct granules divided into rows and spanning entire length of finger. 18
18. Carapace inclined downward from median eyes to anterior margin. 19
– Entire dorsal surface of carapace nearly horizontal in lateral view. 22
19. Fifth metasomal segment punctate. 20
– Fifth metasomal segment granulate. 21
20. The telson is bulbous, aculeus is shorter than the vesicle. ..... ***Orthochiroides vachoni*** Kovařík

– The telson is elongate, aculeus is as long or longer than the vesicle. ..... ***Orthochirus aristidis*** (Simon)
21. Metasoma very thin. Length to width ratio of fourth metasomal segment higher than 1.6. ..... ***Nanobuthus andersoni*** Pocock
– Length to width ratio of fourth metasomal segment lower than 1.5. ..... ***Butheolus ferrugineus*** Kraepelin
22. Cheliceral fixed finger wih one ventral denticle. 23
– Cheliceral fixed finger with two ventral denticles. 25
23. Telson with a subaculear tooth or tubercle. ..... ***Lychas*** C. L. Koch 24
– Telson without a subaculear tooth or tubercle. ..... ***Somalibuthus demisi*** Kovařík
24. Terminal tubercle of each dorsal keel on second and third metasomal segments markedly enlarged. Manus of pedipalps dark. ..... ***Lychas obsti*** Kraepelin
– Terminal tubercle of each dorsal keel scarcely larger than others. Manus of pedipalps light with dark spots ..... ***Lychas asper*** (Pocock)
25. First two segments of mesosoma with five keels. ..... ***Leiurus quinquestriatus*** Ehrenberg
– First two segments of mesosoma without keels or with 1 to 3 keels. 26
26. Carapace granular but lacking distinct keels. ..... ***Buthacus*** Birula 27
– Carapace with distinct keels. 28
27. Movable finger with 8 rows of granules. Ventral surface of first metasomal segment sparsely punctate. Ventral surface of fourth metasomal segment densely granulated. ..... ***Buthacus calviceps*** (Pocock)
– Movable finger with 9–12 rows of granules. Ventral surface of first metasomal segment apart from keels smooth. Ventral surface of fourth metasomal segment only sparsely granulated or smooth. ..... ***Buthacus leptochelys*** (Ehrenberg)
28. Telson with a subaculear tooth or tubercle. ..... ***Odonturus dentatus*** Karsch
– Telson without a subaculear tooth or tubercle. 29
29. Movable finger of pedipalp with three principal distal granules and one terminal granule (Fig. 3). 30
– Movable finger of pedipalp with four principal distal granules and one terminal granule (Figs 1 and 2). 32
30. Central, lateral, and posterior median keels of carapace joined to form a lyre-shaped configuration (Sissom 1990: 92, Fig. 3.17C). ..... ***Buthus occitanus berberensis*** Pocock
– Central, lateral, and posterior median keels of carapace not joined to form a lyre-shaped configuration (Sissom 1990: 92, Fig. 3.17A). ..... ***Androctonus*** Ehrenberg 31
31. Third segment of metasoma longer than wide. ..... ***Androctonus amoreuxi*** (Audouin)
– Third segment of metasoma wider than long. ..... ***Androctonus australis*** (Linné)
32. Central lateral and posterior lateral keels of carapace joined, forming a continuous linear series of granules to posterior margin (Sissom 1990: 92, Fig. 3.17B). ..... ***Compsobuthus*** Vachon 33
– Central lateral and posterior lateral keels of carapace not joined as above, usually separated by a small gap, with central lateral keels continuing distally beyond origin of posterior laterals (Sissom 1990: 92, Fig. 3.17A). ..... ***Hottentotta*** Birula 39
33. Movable finger of pedipalp with external lateral granules (Fig. 2). ..... ***Compsobuthus werneri*** (Birula)
– Movable finger of pedipalp without external lateral granules (Fig. 1). 34
34. Movable finger of pedipalp with 9 rows of granules (Fig. 1). ..... ***Compsobuthus maindroni*** (Kraepelin)
– Movable finger of pedipalp with 10 rows of granules. ..... ***Compsobuthus abyssinicus*** (Birula)
35. Movable finger of pedipalp with 9 or 10 rows of granules. 36
– Movable finger of pedipalp with 7 or 8 rows of granules. 37
36. Movable finger of pedipalp with 10 rows of granules. ..... ***Babycurus multisubaculeatus*** Kovařík
– Movable finger of pedipalp with 9 rows of granules. ..... ***Babycurus wituensis taramassoi*** Borelli
37. Movable finger of pedipalp with 7 rows of granules. 38
– Movable finger of pedipalp with 8 rows of granules. ..... ***Babycurus zambonellii*** Borelli
38. Pectinal teeth number 16. Metasoma very slender, fifth metasomal segment with length to width ratio higher than 2.6. ..... ***Babycurus subpunctatus*** Borelli
– Pectinal teeth number 19–20. Metasoma not very slender, fifth metasomal segment with length to width ratio lower than 2.4. ..... ***Babycurus somalicus*** Hirst
39. All metasomal segments uniformly yellow or yellowish brown. 40
– First three metasomal segments yellow, fourth and fifth segments and telson black. ..... ***Hottentotta scaber*** (Ehrenberg)
40. Metasoma wide. First metasomal segment of adults always wider than long, second metasomal segment usually wider than long. Dorsal keels of third and fourth metasomal segments terminate in one acute granule conspicuously larger than preceding granules. ..... ***Hottentotta minax*** (L. Koch)
– Metasoma narrow. Second metasomal segment of adults always longer than wide, first metasomal segment usually longer than wide (except for some males of *H. trilineata*). Dorsal keels on third and fourth metasomal

segments with granules which may become posteriorly larger but lack conspicuously larger terminal granule (except for some large males of *H. trilineata*). 41

41. Metasoma very narrow. Length to width ratio of fourth metasomal segment higher than 1.6. .... ***Hottentotta polystictus*** (Pocock)

– Length to width ratio of fourth metasomal segment lower than 1.6. ..... ***Hottentotta trilineatus*** (Peters)

42. Pedipalp patella with three ventral trichobothria. 43

– Pedipalp patella with more than 20 ventral trichobothria which form 3 dense rows. ... ***Pandinus*** Thorell ... 44

43. Carapace with three pairs of lateral eyes. ..... ***Hemiscorpius socotranus*** Pocock

– Carapace with two pairs of lateral eyes. ..... ***Iomachus politus*** Pocock

44. Chela with two internal trichobothria (Fig. 14). ..... ***P.*** **(*Pandinurus*)** Fet 45

– Chela with three to eight internal trichobothria (Figs 15 and 16). 48

45. Dorsal surface of manus with evenly sized conspicuous granules. ..... ***Pandinus*** (***Pandinurus***) ***exitialis*** (Pocock)

– Dorsal surface of manus more or less tuberculate, often with longitudinal keels but without conical, evenly sized granules. 46

46. Ventral side of manus with 2 longitudinal keels covered by several granules. 47

– Ventral side of manus usually with 2 smooth longitudinal keels or rarely without keels. .... ***Pandinus*** (***Pandinurus***) ***pallidus*** (Kraepelin)

47. Dorsal keels on fourth metasomal segment without discrete denticles. .... ***Pandinus*** (***Pandinurus***) ***magrettii*** Borelli

– Dorsal keels on fourth metasomal segment with discrete denticles. .... ***Pandinus*** (***Pandinurus***) ***meidensis*** Karsch

48. Chela with three internal trichobothria. ..... ***P.*** (***Pandinus***) Thorell …….. 49

– Chela with four to eight internal trichobothria (Figs 15 and 16). 50

49. Granules on manus of pedipalp conical and pointed. ..... ***Pandinus*** (***Pandinus***) ***smithi*** (Pocock)

– Granules on manus of pedipalp not conical and pointed, their summits sometimes confluent. .... ***Pandinus*** (***Pandinus***) ***phillipsii*** (Pocock)

50. Chela with four or five internal trichobothria (Fig. 15). ..... ***P.*** (***Pandinoides***) Fet 51

– Chela with six to eight internal trichobothria (Fig. 16). ..... ***P.*** (***Pandinops***) Birula 52

51. Dorsal keels on third and fourth metasomal segments with terminal tubercles markedly enlarged. (female only, male is unknown). ..... ***Pandinus*** (***Pandinoides***) ***platycheles*** Werner

– Dorsal keels on third and fourth metasomal segments with terminal tubercle scarcely larger than preceding tubercles. ..... ***Pandinus*** (***Pandinoides***) ***cavimanus*** (Pocock)

52. First and second metasomal segments ventrally smooth, without granules or tubercles. .... ***Pandinus*** (***Pandinops***) ***bellicosus*** (L. Koch)

– First and second metasomal segments ventrally bear closely spaced granules or least tubercles. 53

53. Dorsal surface of manus smooth, without granules. ..... ***Pandinus*** (***Pandinops***) ***hawkeri*** Pocock

– Dorsal surface of manus with granules or conspicuous tubercles. 54

54. Dorsal surface of manus densely covered by pointed granules. ..... ***Pandinus*** (***Pandinops***) ***colei*** (Pocock)

– Dorsal surface of manus tuberculate, without pointed granules. 55

55. Dorsal keel of patella composed of well defined granules; carapace and mesosomal segments bear numerous larger granules. ..... ***Pandinus*** (***Pandinops***) ***pococki*** Kovařík

– Dorsal keels of patella, carapace, and mesosomal segments smooth. 56

56. Seventh mesosomal segment ventrally bears numerous granules, as do first and second metasomal segments .... ***Pandinus*** (***Pandinops***) ***peeli*** Pocock

– Seventh mesosomal segment ventrally with two keels and uneven. First and second metasomal segments uneven, without granules. ..... ***Pandinus*** (***Pandinops***) ***eritreaensis*** **sp. n.**

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ADDENDUM

After submitting the manuscript, I continued searching for types regarded as lost, and thanks to Sarah Whitman of MZUF it became possible to find an old, long overdue loan to another Italian museum, whose return added more than 100 specimens, among them those noted below.

Most importantly, returned was the holotype of *Parabuthus zavattarii* Caporiacco, 1939 (labeled Ethiopia, Mega, 7.V.1935, leg. E. Zavattari). It is a male that confirms the above synonymy, because there can be no doubt that it is identical with *Parabuthus pallidus* Pocock, 1895. It should be noted that the type locality (Mega) has often been incorrectly placed in Somalia.

Returned was also a specimen about which I am convinced that it is the holotype of *Parabuthus stefaninii* Caporiacco, 1927. It bears several labels, among them a type locality label stating "Somalia, Darod, 1924, Stefanini & Puccioni", and an identification label stating "*Parabuthus stefaninii* Cap. Paratype" (this is apparently an error, because the species was based on a single immature specimen). Unfortunately, this juvenile is heavily damaged (gone are most of the legs and parts of pedipalps, and only the first segment remains of the metasoma), but it can be considered a synonym of *Parabuthus heterurus* Pocock, 1897, as already done above.

Also returned were two adult males of the above described *Parabuthus eritreaensis* sp. n., which confirms the occurrence of this species in Somalia. One male is labeled "Somalia, Gardo, Migiurtina, V. 1930, leg. M. Milano & Luppi", and the other is labeled "Somalia, Run, S.B.S., 16.VIII.1969".