

Complementary data on the genus *Ischnocolus* (Araneae: Theraphosidae)

SERGEI L. ZONSTEIN

Steinhardt Museum of Natural History, Tel Aviv University, Tel Aviv, 69978 Israel.
E-mail: znn@post.tau.ac.il

ABSTRACT

The paper provides additional information on the taxonomy of the theraphosid genus *Ischnocolus* Ausserer, 1871. A new combination is proposed: *Ischnocolus elongatus* (Simon, 1873), n. comb. (ex *Cyrtauchenius*). The hitherto unknown males of *I. hancocki* Smith, 1990 and *I. jickelii* (L. Koch, 1875) are depicted and described for the first time. Illustrations of the male palpal organ showing its structure in two remaining congeners, *I. valentinus* (Dufour, 1820) and *I. ignoratus* Guadanucci & Wendt, 2014, are also provided. The following synonymy is established: *Mygale valentina* Dufour, 1820 = *Leptopelma cavicola* Simon, 1889, n. syn. The taxonomic position of species, previously included in *Leptopelma* Ausserer, 1871, is briefly discussed.

KEYWORDS: Mygalomorphae, Ischnocolinae, *Leptopelma*, bird-eating spiders, tarantulas, Afrotropical, Palearctic, new combination, new synonymy, taxonomy.

INTRODUCTION

The genus *Ischnocolus* Ausserer, 1871, considered for a long time a worldwide distributed taxon with up to 33 species (Bonnet 1957), has been recently redefined and revised (Guadanucci & Wendt 2014). The revision reduced the number of valid species definitely belonging to *Ischnocolus* to four, and restricted the range of the genus to Western Mediterranean, East Africa and Near East. All other valid *Ischnocolus* spp. previously occurred outside these regions were assigned either to species inquirenda, or to insertae sedis ones (Guadanucci & Wendt 2014). The authors based their comprehensive study on all then available material. Nevertheless, within the four accepted congeners, only two species are described from both sexes, while the other two have hitherto been known only from females.

The present study is based chiefly on the results of examination of two spider collections deposited at the Royal Museum for Central Africa (Tervuren, Belgium) and at the Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia). Among the mygalomorphs, three males of *Ischnocolus* were preliminarily identified, one in the former collection and two in the latter one. More detail examination of this material has yielded previously unknown males of *I. hancocki* Smith, 1990 and *I. jickelii* (L. Koch, 1875), which are promptly described here for the first time. Additionally, the examination of the Simon's collection at the Muséum National d'Histoire Naturelle (Paris, France), as well as the analysis of the published data, has led to discovery of one more species that belongs in *Isch-*

nocolus and of another synonym of *I. valentinus* (Dufour, 1820). All this new information is summarized below.

MATERIALS AND METHODS

Specimens from the following spider collections were studied:

- MNHN – Muséum National d'Histoire naturelle, Paris, France;
- MRAC – Royal Museum for Central Africa, Tervuren, Belgium;
- NHML – Natural History Museum, London, UK;
- SMNH – Steinhardt Museum of Natural History, Tel Aviv, Israel;
- ZISP – Zoological Institute, St. Petersburg, Russia.

Photographs were taken using a Zeiss Discovery V20 stereomicroscope with a Canon PowerShot G9 camera, and prepared using the Helicon Focus 6.3.2 Pro (www.heliconsoft.com). Illustrations of dissected vulva placed into a small Petri dish filled with a solution of 85% lactic acid were made after maceration of the dissected copulative organs in 10% KOH aqueous solution and exposure for a few minutes in the alcohol solution of Chlorazol Black.

Measurements were taken through the above-mentioned stereomicroscope with the 0.01 mm accuracy. Total body length, as accepted for mygalomorph spiders (Raven & Schwendinger 1995), includes the chelicerae but not the spinnerets. The diameter of the AME is usually given as the diameter of a sharply edged AME circle (the 'pupil'). When the AME cornea is well-separated and elevated, and its diameter can be measured, the corresponding data follow in brackets. Any eye interdistances counting this parameter are also given in brackets. The length of the sternum was measured along the straight line between the posterior tip of the sternum and the hindmost part of the labium. Lengths of leg and palp segments were measured on the dorsal side, and lengths of spinneret segments on the ventral side, from the midpoint of the anterior margin to the midpoint of the posterior margin.

The following abbreviations are used in the article: ALE – anterior lateral eyes, AME – anterior median eyes, d – dorsal, M – megaspine, PLE – posterior lateral eyes, PLS – posterior lateral spinnerets, PME – median lateral eyes, PMS – posterior median spinnerets, p – prolateral, pd – prodorsal, pv – proventral, r – retrolateral, rd – retrodorsal, rv – retroventral, v – ventral.

TAXONOMY

Family Theraphosidae Thorell, 1869

Genus *Ischnocolus* Ausserer, 1871

Ischnocolus elongatus (Simon, 1873), **n. comb.**

Cyrtauchenius elongatus Simon, 1873: 32 (♀); Moggridge 1874: 182, 189, 248, pl. XIII, fig. B (burrow entrance); Savory 1928: 290.

Leptopelma africana Ausserer, 1875: 167 (♀). Synonymised with *Cyrtauchenius elongatus* Simon, 1873 by Simon (1889: 396). Not a secondary homonym of *Cteniza africana* C.L. Koch, 1838: 10, fig. 344 (♀) = *Nemesia africana* (C.L. Koch, 1838).

Leptopelma elongata: Simon 1889: 395, pl. XIII, fig. 2 (♀, burrow entrance), 1909: 9; Reimoser 1919: 7; Berland 1932: 110, fig. 219 (burrow entrance).

Leptopelma elongatum: Simon 1892: 127; Roewer 1942: 222; Bonnet 1957: 2396.

Nemesia elongata: Uchman *et al.* 2018: 73.

Distribution: The species is known from two localities in Morocco (Simon 1873; Ausserer 1875).

Notes: The holotype of *Cyrttauchenius elongatus* was not found in the Simon's collection in the MNHN when I visited Paris in 2012. The holotype of *Leptopelma africana* Ausserer, 1875 kept at the NHML was not examined either. However, the original description of the latter taxon (Ausserer 1875: 167) clearly points to its position within the Theraphosidae: "2 zahnlose Klauen und 2 Haarbüschel vor denselben an jedem Tarsus. Oberes Paar der Spinnwarzen so lang als Tibia I, die 3 Glieder in ihrer Länge wenig verschieden; das untere Paar kaum halb so lang, als das Basalglied der oberen." [2 toothless claws and 2 tufts of hairs in front of them on each tarsus. Upper pair of spinnerets is as long as tibia I, the 3 segments are little different in their length; the lower pair is about half as long as the basal segment of the upper one].

According to Simon (1889), he had a possibility to examine the holotype of *L. africana* and found it conspecific with *L. elongata*. Furthermore, *Ischnocolus* remains the only theraphosid genus recorded in Morocco and the adjacent countries (WSC 2018).

Ischnocolus hancocki Smith, 1990

(Figs 1–8)

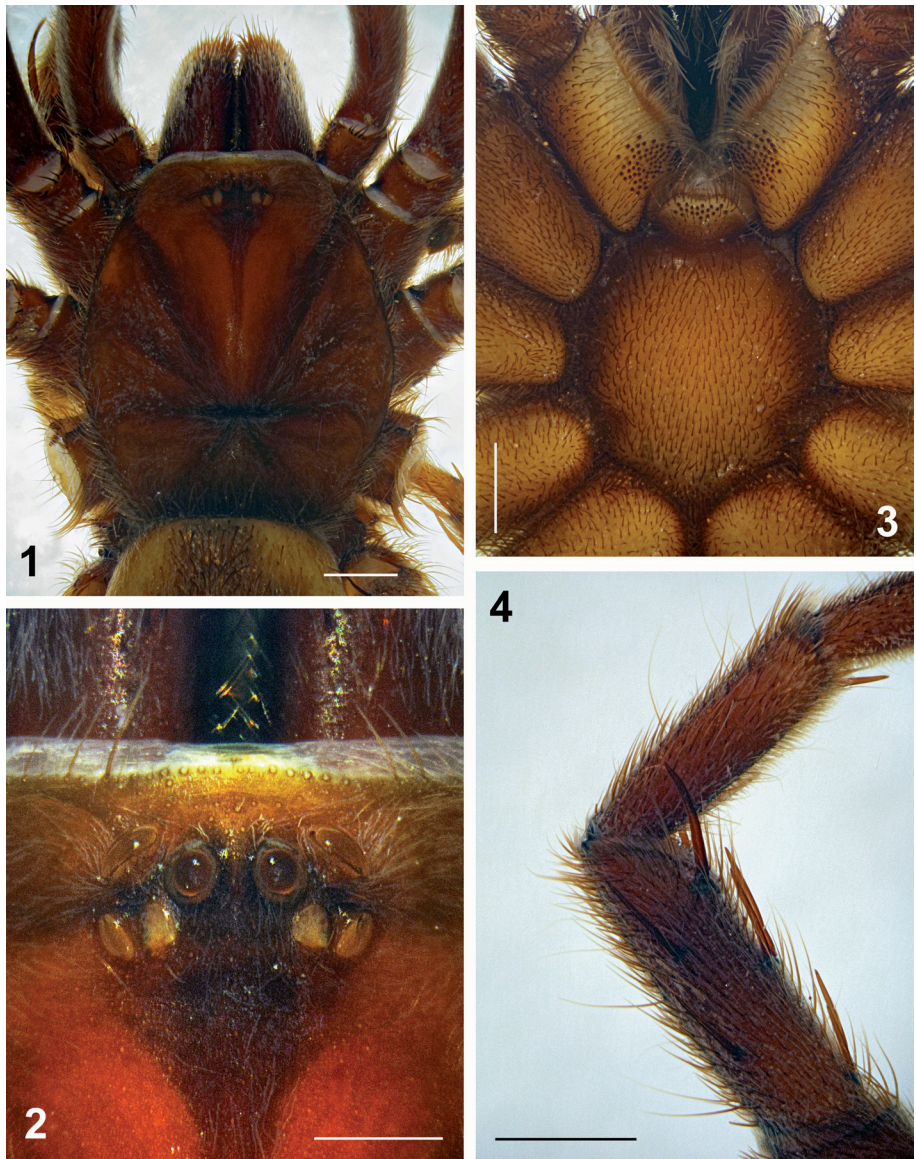
Ischnocolus hancocki Smith, 1990: 127, figs 803–818 (♀); Guadanucci & Wendt 2014: 394, fig. 4A (♀).

Description. Male: Body length, 13.20.

Color in alcohol: carapace, chelicerae, palps and legs II dark brownish orange; eye tubercle only slightly darkened, brown; clypeus, margins and radial grooves of carapace darker than cephalic portion in medial part; chelicerae dark reddish brown; sternum, labium, maxillae, leg coxae I–IV, other segments of legs III–IV, most part of abdomen and spinnerets light yellowish brown; darker brown dorsal abdominal pattern consists of poorly discernible narrow median stripe fused with several paired lateral chevrons.

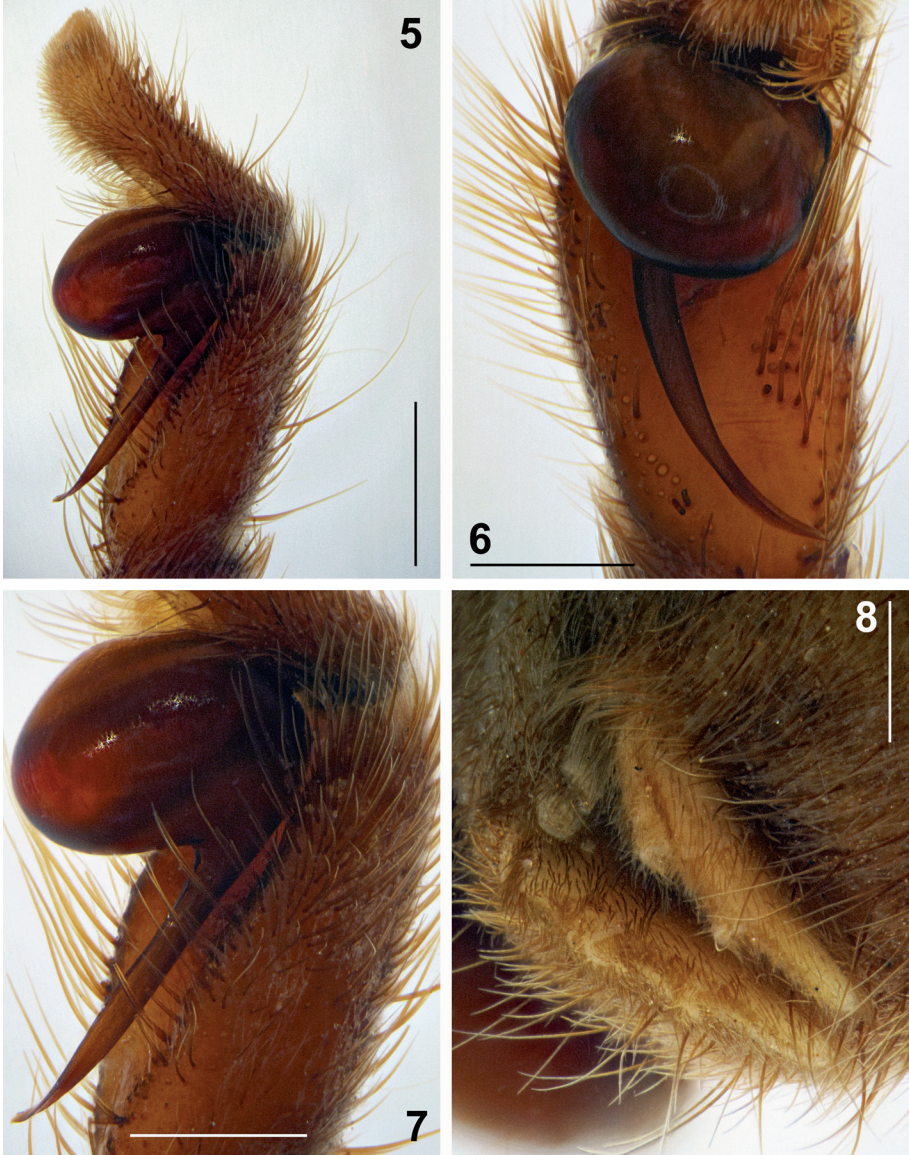
Prosoma as in Figs 1, 3. Carapace 5.23 long, 4.40 wide. Clypeus and eye tubercle as in Fig. 2. Eye diameters and interspaces: AME 0.18(0.26), ALE 0.27, PLE 0.19, PME 0.18, AME–AME 0.15(0.07), ALE–AME 0.12(0.08), ALE–PLE 0.11, PLE–PME 0.04, PME–PME 0.41. Weak cheliceral rastellum composed of 20–25 slightly thickened spikes located in front of fang base. Each cheliceral furrow with 8 promarginal teeth and 10 mesobasal denticles. Labium with 20 cuspules; 0.48 long, 0.83 wide. Sternum 2.40 long, 1.89 wide. Each maxilla with about 85 cuspules arranged in triangular area. Serrula inconspicuous (under light microscope at magnification 150×).

Palp and legs. Tibia and metatarsus I as in Fig. 4. Spines (all femora with medial row of 3–6 thickened bristles; palpal patella, patellae I–II and IV, tarsi I–IV and cymbium aspinose). Palp: femur pd1, rd1; tibia pd1–1, pv1–1. Leg I: femur pd1,



Figs 1–4: *Ischnocolus hancocki* Smith, 1990, male (ZISP): (1, 3) prosoma, dorsal and ventral aspects, respectively; (2) eye tubercle, dorsal; (4) tibia and metatarsus I, retrolateral. Scale bars: Figs 1, 3, 4 = 1.0 mm, Fig. 2 = 0.5 mm.

rd1; tibia p1-1, v2-2-1+M, metatarsus rv1-0-1. Leg II: femur pd1; tibia p1-1, v1-1-2; metatarsus p1-0-1, rv1-1. Leg III: femur pd1-1; patella p1; tibia p1-1, r1-1, v1-1-2; metatarsus pd1-1-1, rd1-1, v1-2-3. Leg IV: femur pd1, rd1-1; tibia



Figs 5–8: *Ischnocolus hancocki* Smith, 1990, male (ZISP): (5) distal segments of pedipalp, showing palpal organ, retrolateral aspect; (6, 7) palpal organ, ventral and retrolateral, respectively; (8) spinnerets, ventrolateral. Scale bars: Figs 5, 8 = 1.0 mm, Figs 6, 7 = 0.5 mm.

p1, r1–1, v2–2–3(2); metatarsus p1–1–1, r1–1–1, v1–2–2–3. Metatarsal preening combs absent. Scopula: entire on metatarsus I, distal and divided on metatarsus II, sparse and distal on metatarsi III–IV; very narrowly divided on tarsus I; narrowly divided on tarsi II–III; widely divided on tarsus IV. Trichobothria: 2 rows of 7 or 8 in each row on tibiae, 14–16 on metatarsi, 9–12 (+4–6 clavate) on tarsi, 5–8 clavate on cymbium. Tarsus IV cracked. Paired claws on tarsi I–IV bipectinate, with 4 or 5 teeth in each row. Leg measurements:

	Palp	I	II	III	IV
Femur	2.75	4.23	3.85	3.44	4.35
Patella	1.47	2.46	2.09	1.54	1.97
Tibia	1.79	2.85	2.42	2.05	3.29
Metatarsus	–	2.63	2.45	2.61	3.87
Tarsus	1.70	1.69	1.68	1.83	2.13
Total	7.71	13.86	12.49	11.47	15.61

Copulatory organs. Palp with short and slightly swollen tibia, and elongate cymbium (Fig. 5). Palpal organ with moderately long flattened and apically twisted embolus (Figs 6, 7).

Spinnerets as in Fig. 8. PMS: length 0.43; diameter 0.23. PLS: maximal diameter 0.47; length of basal, medial and apical segments 0.62, 0.43, 0.55, respectively; total length 1.60; apical segment shortly digitiform.

Female: Redescribed in detail by Guadanucci and Wendt (2014).

Material examined: Morocco: 1♂ Mazagan (El Jadida), 33°15'N 8°30'W, iii.1902, F.W. Riggenschach (ZISP 181-02).

Distribution: Known only from Morocco.

Notes: The male described above looks to be related to the female of *I. hancocki* in having a very similar arrangement of the eyes, sternal sigilla, labial and sternal cuspules (Figs 2, 3 cf. Smith 1990, figs 805, 806). As the *I. hancocki* female, the male possesses the PLS with the median segment as wide as long, and with a short apical segment which is only slightly longer than the preceding one (Fig. 8 cf. Smith 1990, fig. 804). It should be also noted that *I. elongatus* and *I. hancocki* are known from the same north-western region of Morocco. In addition, both these species share an unusually short (compared to their congeners) apical segment of the PLS. The potential synonymy of *I. elongatus* and *I. hancocki* cannot thus be excluded.

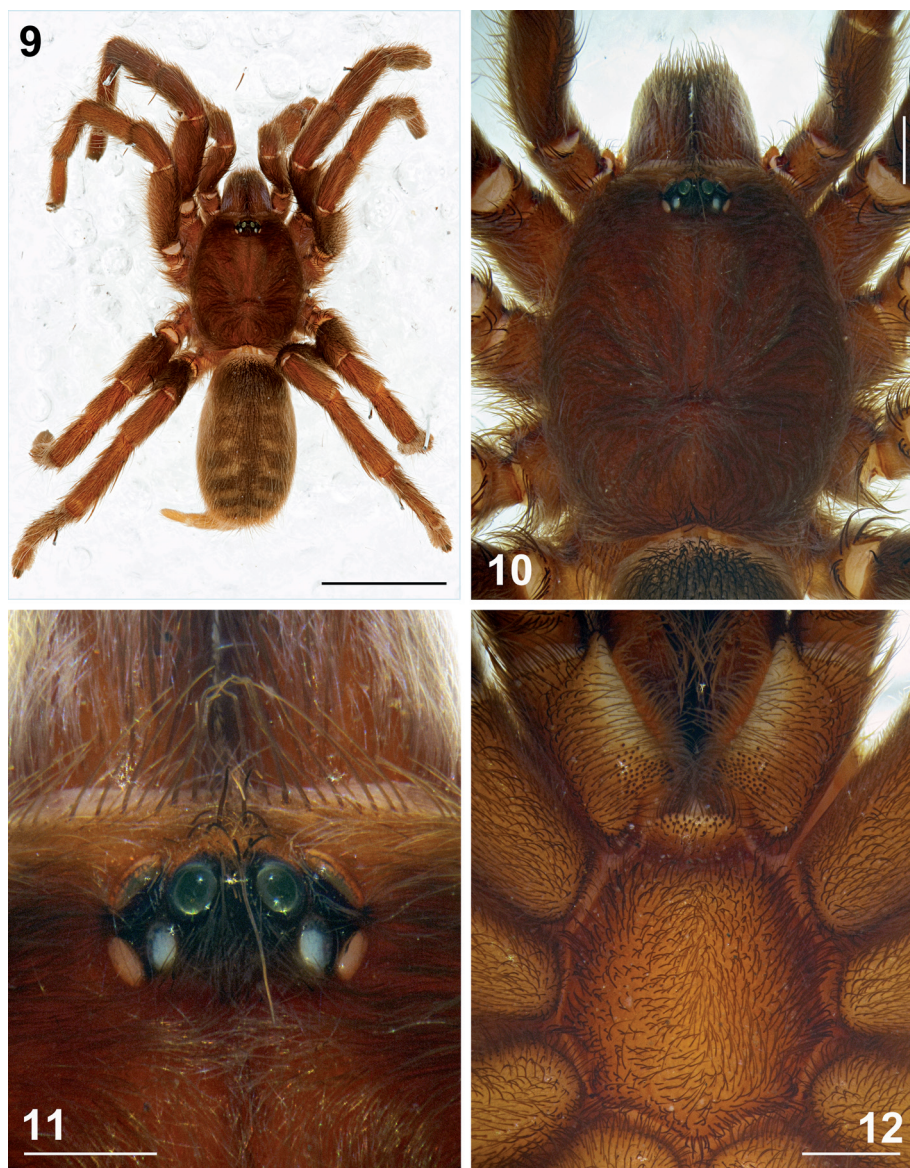
Ischnocolus jickelii L. Koch, 1875

(Figs 9–17)

Ischnocolus jickelii L. Koch, 1875: 5, pl. VI, fig. 2 (♀); Guadanucci & Gallon 2008: 42; Guadanucci & Wendt 2014: 395, fig. 4B (♀).

Chaetopelma adenense Simon, 1890: 83 (♀). Synonymised with *I. jickelii* by Guadanucci & Gallon 2008: 42.

Description. Male: Habitus as in Fig. 9. Body length, 12.75.



Figs 9–12: *Ischnocolus jickelii* L. Koch, 1875, male (MRAC 236503): (9) habitus, dorsal aspect; (10, 12) prosoma, dorsal and ventral, respectively; (11) eye tubercle, dorsal. Scale bars: Fig. 9 = 5.0 mm, Figs 10, 12 = 1.0 mm, Fig. 11 = 0.5 mm.

Color in alcohol: carapace, chelicerae, palps and legs I–IV dorsally dull reddish brown; eye tubercle dark brown; eyes surrounded by narrow blackish ring; sternum, labium, palps (including maxillae) and legs I–IV (including coxae) ventrally light brownish orange; most abdomen dorsally medium yellowish brown with darker brown pattern consisting of large darkened area in anterior quarter, and narrow median stripe fused with several paired lateral fasciae posteriorly; ventral surface of abdomen and spinnerets light yellowish brown.



Figs 13–17: *Ischnocolus jickelii* L. Koch, 1875, male (MRAC 236503): (13) tibia and metatarsus I, retrolateral aspect; (14) distal segments of pedipalp, showing palpal organ, retrolateral; (15, 16) palpal organ, proventral, retrolateral and ventral, respectively; (17) spinnerets, ventral. Scale bars: Figs 13, 14, 17 = 0.5 mm, Figs 15, 16 = 0.5 mm.

Prosoma as in Figs 10, 12. Carapace 5.13 long, 4.18. Eye tubercle as in Fig. 2. Eye diameters and interspaces: AME 0.19(0.25), ALE 0.29, PLE 0.20, PME 0.18, AME–AME 0.14(0.08), ALE–AME 0.11(0.08), ALE–PLE 0.09, PLE–PME 0.04, PME–PME 0.44. Cheliceral rastellum absent. Each cheliceral furrow with 9 promarginal teeth and 6 or 7 mesobasal denticles. Labium with 31 cuspsules; 0.43 long, 1.06 wide. Sternum 2.32 long, 2.22 wide. Each maxilla with *ca.* 70 cuspsules arranged in triangular area. Serrula indiscernible.

Palp and legs. Tibia and metatarsus I as in Fig. 13. Spines (all femora with medial row of 4–7 thickened bristles; palpal patella, tibia and cymbium, patellae I and II, tarsi I–IV and cymbium aspinose). Palp: femur pd1. Leg I: femur pd1; tibia p1–1–2, v3–3(2)–1, metatarsus p1, rv1–1. Leg II: femur pd1; tibia p1–1, v2–2–3; metatarsus p1, rv1–1. Leg III: femur pd1, rd1; patella p3; tibia p1–1–1(0), r1–1, v2–2–3; metatarsus p1–1–1, r1–1, v1–1–1–3. Leg IV: femur pd1; patella p1; tibia p1–1, r1–2–1–1, v3–2–3; metatarsus p1–1, r3–1–1, v2–1–2–3. Metatarsal preening combs absent. Scopula entire on distal two-thirds of metatarsus I and one-third of metatarsus II; sparse and proventral on distal metatarsi III and IV; narrowly divided on tarsi I–III; more widely divided on tarsus IV. Trichobothria: 2 rows of 5 or 6 in each row on tibiae, 7–13 on metatarsi, 16–27 (+8–12 clavate) on tarsi, 9 (+12 clavate) on cymbium. Tarsus IV cracked. Paired claws on tarsi I–IV bipectinate, with 3 subapical teeth in each row. Leg measurements:

	Palp	I	II	III	IV
Femur	2.54	3.79	3.59	3.37	4.19
Patella	1.39	2.34	1.86	1.79	2.19
Tibia	1.74	2.90	2.37	2.04	3.43
Metatarsus	–	2.66	2.57	2.99	4.29
Tarsus	1.21	1.88	1.84	1.84	2.38
Total	6.88	13.57	12.23	12.03	16.48

Copulatory organs. Palp with moderately short tibia and cymbium (Fig. 14). Palpal organ with long, flattened and slightly curved embolus (Figs 15, 16).

Spinnerets as in Fig. 17. PMS: length 0.52; diameter 0.21. PLS: maximal diameter 0.59; length of basal, medial and apical segments 1.12, 0.68, 1.01, respectively; total length 2.81; apical segment digitiform.

Female: Redescribed in detail by Guadanucci and Wendt (2014).

Material examined: **Ethiopia:** 1♂ Oromiya Region, near Harbona (=Habona, as labeled), 8°44'N 39°33'E, 1200–1300 m, sparse grassland, 16.viii.1988, A. Russel-Smith (MRAC 236144); 1♂ Somali Region, Cherti (=Chereti, as labeled), 5°20'N 42°05'E, 320 m, 7.iv.1898, A. Bulatovich (ZISP 46-99). **Somalia:** 1♀ Mogadishu, 2°04'N 45°22'E, i.1945, P. Accigliaro (MRAC 147156).

Distribution: The African Horn Region and the adjacent area: Djibouti, Ethiopia, Somalia, Yemen (Guadanucci & Wendt 2014; WSC 2018).

Notes: Judging from a very similar coloration, as well as from almost identically arranged eyes, cheliceral teeth, labial and maxillary cuspsules, the above males and female are undoubtedly conspecific. The female from Mogadishu was previously identified and noted as *I. jickelii* in the taxonomic revision of *Ischnocolus* by Guadanucci and Wendt (2014).

Ischnocolus valentinus (Dufour, 1820)

(Figs 18–20)

Mygale valentina Dufour, 1820: 5, pl. LXXIII, figs 1, 2 (♂).*Ischnocolus valentinus*: Ausserer, 1871: 186; Guadanucci & Wendt 2014: 391, fig. 3A–D (♂♀).*Leptopelma cavicola* Simon 1889: 396, pl. XIII, fig. 3 (♂♀, burrow structure), 1909: 8; Reimoser 1919: 7; Roewer 1942: 222; Bonnet 1957: 2395; Benoit 1964: 414, figs 1, 2 (♂♀). **N. syn.***Leptopelma cavicola* [lapsus]: McCook 1890: 189, fig. 1 (burrow structure).

Figs 18–23: *Ischnocolus valentinus* (Dufour, 1820) (18–20) and *I. ignoratus* Guadanucci & Wendt, 2014 (21–23), males (MRAC 130699 and SMNH, respectively): (18, 20) distal segments of pedipalp, showing palpal organ, retrolateral aspect; (19, 22) palpal organ, retrolateral; (20, 23) same, ventral. Scale bars: Figs 18, 21 = 1.0 mm, Figs 19, 20, 22, 23 = 0.5 mm.

Nemesia cavicola: Uchman *et al.* 2018: 69, 73, fig. 1g (burrow structure).

NB: Only sources using the original name, the currently accepted name and the names which fall into the newly established synonymy are listed here. For the full synonymy list refer to WSC (2018).

Material examined: **Algeria:** 1♂ "Mecheria – Bou Saada – Metjez" [no other data] (MNHN 6131); 2♂ same label data (MNHN 6192); 1♂ 1♀ Daya [no other data, probably collected in 1882–1884 by M.L. Bedel] (syntypes of *Leptopelma cavicola* Simon, 1889) (MNHN 6130/AR4542); 8♂ 30♀ Birin, Oued Sedem & Tlemsen, mid-1880s, E. Simon (syntypes of *L. cavicola* Simon, 1889) (MNHN 5550/AR4548). **Morocco:** 1♂ 1♀ Fez, ii.1868, E. Simon (syntypes of *Ischnocolus maroccanus* Simon, 1873) (MNHN 1459); 1♂ Tizni, ii.1964, J. Lambert (MRAC 130699).

Distribution: Spain, Italy, Morocco, Algeria, Tunisia, Libya (WSC 2018). According to Guadanucci and Wendt (2014), the range of this species includes also the disputed Western Sahara.

Ischnocolus ignoratus Guadanucci & Wendt, 2014

(Figs 21–23)

Ischnocolus ignoratus Guadanucci & Wendt, 2014: 396, fig. 5A–C (♂♀).

Material examined: **Israel:** 1♂ Shoham Forest Park 27 km NW Jerusalem, 31°56'N 34°58'E, 14.v.2013, D. David (SMNH).

Distribution: The species has been known from Israel (Jerusalem area) and reported as collected (in 1896) also from Syria (Guadanucci & Wendt 2014). The label "Syria" (without further locality details) may refer to the territory of the Ottoman Syria, which in XIX century was considered comprising many localities outside the present-day Syria, including Jerusalem (see Zonstein & Marusik 2013).

DISCUSSION

The genus *Leptopelma* was established by Ausserer (1871) for a single South European species described concurrently with the genus, *L. transalpina* Doleschall in Ausserer, 1871 (Ausserer 1871: 183–184). Soon afterwards, Ausserer (1875) described *L. africana* Ausserer, 1875 from Morocco. He also transferred to *Leptopelma* one more Mediterranean species, *Mygale meridionalis* Costa, 1835 (Ausserer (1875: 168). A few years later, Karsch (1878) described *L. dubia* Karsch, 1878 from Mozambique. Simon (1889) added another two species from North-Western Africa: *L. elongata* (Simon, 1873), which he described earlier (1873) in *Cyртаuchenius* Thorell, 1869 and considered then a senior synonym of *L. africana*, and a newly described species, *L. cavicola* Simon, 1889.

Subsequently, Franganillo (1930) expanded the genus range to the New World, when he described and included in *Leptopelma* two Caribbean species: *L. aras-tellatus* Franganillo, 1930 and *L. cubana* Franganillo, 1930. The last member of the genus, *L. nigrioculatum* Bücherl, Timotheo & Lucas, 1971, was described from Brazil (Bücherl *et al.* 1971). Two out of these three New World species were later transferred to other mygalomorph genera and synonymized (Franganillo 1931; Raven 1985; Lucas & Indicatti 2015).

The genus, arranged so, included both rastellate and arastellate species, with or without third tarsal claw, with domed or with elongate apical segment of PLS. Its taxonomic position was also ambiguous. Most authors who dealt with *Leptopelma* prior to Raven (1985), followed Simon (1892) in placing this genus in the tribe Leptopelmateae Simon, 1892 (Simon 1903) or Leptopelmateas (Mello Leitão 1923), elevated later to the barychelid subfamily Leptopelmatinae (Petrunkovich 1928; Benoit 1964, 1965).

Raven (1985, 1990) twice synonymized *Leptopelma*. Initially, he synonymized it with *Ischnocolus* (Raven 1985), however noting that he had no possibility to examine the holotype of *L. transalpina*, since it had been lent from the Naturhistorisches Museum Wien to another researcher (Raven 1985: 155). Later, Raven (1990) synonymized *Leptopelma* with *Nemesia* Audouin, 1826. Regarding the type species of *Leptopelma* (and thus to the corresponding genus name) this synonymy appears to be quite correct. The current allocation of *Nemesia meridionalis* (Costa, 1835) also seems to be justified (see Isaia & Decae 2012). However, the taxonomic position of the remaining ex-members of *Leptopelma*, obviously unrelated to the above two species, seems problematic. Although Raven (1990) dealt only with *L. transalpina*, and did not consider other valid species formerly placed in the genus, all these ex-members were then attributed to *Nemesia* (Platnick 1993, 2000; Uchman *et al.* 2018; WSC 2018).

Ausserer, as far as possible to judge from his study of 1875, actually confused characters of *Leptopelma* and *Nemesia*. However, Simon (as seen from his works since 1889) never jumbled those. There were cases when he directly mentioned members of *Nemesia*, *Leptopelma* and *Ischnocolus* as the representatives of different genera (e.g., Simon 1909: 8–10). Nevertheless, it should be stressed that Simon distinguished *Leptopelma* (*sensu* Simon) from *Ischnocolus* only because the former was found to possess a feeble cheliceral rastellum and somewhat shorter apical segment of PLS. These characters regarded at that time reliable, were subjectively assessed. Now that assumption can be re-evaluated based on the fact that the types of *Leptopelma cavicola* have been found in course of this study indistinguishable from representatives of *Ischnocolus valentinus* (or rather, their characters were considered to be within the limits of the intraspecific variability).

Afrotropical and Neotropical former members of *Leptopelma* fall beyond the scope of this study and therefore are touched here very briefly. The female holotype of *Leptopelma dubia*, described by Karsch (1878) from Mozambique, judging from the corresponding figures of the habitus and structure of the tarsal claws (Karsch 1878: figs 1, 1a), undoubtedly belongs in the Barychelidae. The original description of *L. cubana* by Franganillo (1930) mentions the toothless paired tarsal claws and the presence of divided scopula on tarsi III–IV, which prevents the placement of this species in *Nemesia*.

ACKNOWLEDGEMENTS

I use this opportunity to thank Vladimir Ovcharenko, the former curator of ZISP spider collection, Christine Rollard and Elise-Ann LeGuin (MNHN), and Rudy Jocqué (MRAC), who kindly lent the requested specimens for study. The study was enabled through the financial help generously provided by the Ministry of Absorption, Israel.

REFERENCES

- AUSSERER, A. 1871. Beiträge zur Kenntniss der Arachniden-Familie der Territelariae Thorell (Mygalidae Autor.). *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien* **21**: 117–224.
<https://www.biodiversitylibrary.org/page/16425408#page/271>
- 1875. Zweiter Beitrag zur Kenntniss der Arachniden-Familie der Territelariae Thorell (Mygalidae Autor.). *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien* **25**: 125–206.
<https://www.biodiversitylibrary.org/page/16420158#page/229>
- BENOIT, P.L.G. 1964. Etudes sur les Barychelidae du Centre Africain (Araneae – Orthognata) I. La séparation des sous-familles. *Revue de Zoologie et de Botanique Africaines* **70**: 412–416.
- 1965. Etudes sur les Barychelidae du Centre Africain (Araneae - Orthognatha) II. – Leptopelmatainae nouveaux. *Revue de Zoologie et de Botanique Africaines* **71**: 297–303.
- BERLAND, L. 1932. Les Arachnides (Scorpions, Araignées, etc.). In: Lechevalier, P. (Ed.), *Encyclopédie entomologique*. Vol. 16. Paul Lechevalier & Fils, Paris, p. 1–485.
- BONNET, P. 1957. *Bibliographia araneorum*. Vol. 2 (3). Doulaoure, Toulouse, pp. 1927–3026.
- BÜCHERL, W., TIMOTHEO DA COSTA, A. & LUCAS, S. 1971. Revisão de alguns tipos de aranhas caranguejeiras (Orthognatha) estabelecidos por Cândido de Mello-Leitão e depositados no Museu Nacional do Rio. *Memórias do Instituto Butantan* **35**: 117–138.
<https://www.biodiversitylibrary.org/item/239308#page/134>
- DUFOUR, L. 1820. Observations sur quelques arachnides quadripulmonaires. *Annales Générales des Sciences Physiques* **5**: 96–116.
- FRANGANILLO, B.P. 1930. Arácnidos de Cuba: Mas arácnidos nuevos de la Isla de Cuba. *Memorias del Instituto Nacional de Investigaciones Científicas* **1**: 47–99.
- 1931. Excursiones arachnológicas, durante el mes de agosto de 1930. *Estudios de «Belen»* (27–28): 285–288.
- GUADANUCCI, J.P.L. & GALLON, R.C. 2008. A revision of the spider genera *Chaetopelma* Ausserer 1871 and *Nesiergus* Simon 1903 (Araneae, Theraphosidae, Ischnocolinae). *Zootaxa* **1753**: 34–48.
<http://doi.org/10.5281/zenodo.181769>
- GUADANUCCI, J.P.L. & WENDT, I. 2014. Revision of the spider genus *Ischnocolus* Ausserer, 1871 (Mygalomorphae: Theraphosidae: Ischnocolinae). *Journal of Natural History* **48** (7–8): 387–402.
<http://dx.doi.org/10.1080/00222933.2013.809492>
- ISAIA, M. & DECAE, A. 2012. Revalidation of *Nemesia meridionalis* Costa, 1835 (Araneae, Mygalomorphae, Nemesiidae), and first description of the male. *Bulletin of the British Arachnological Society* **15** (8): 280–284.
<https://doi.org/10.13156/arac.2012.15.1.280>
- KARSCH, F. 1878. Übersicht der von Peters in Mossambique gesammelten Arachniden. *Monatsberichte der Königlich Preussischen Akademie der Wissenschaften zu Berlin* (4): 314–338.
<https://www.biodiversitylibrary.org/item/111278#page/352>
- Koch, C.L. 1838. *Die Arachniden*. C.H. Zeh'sche Buchhandlung, Nürnberg, Vierter Band, pp. 109–144, Fünfter Band, pp. 1–124.
- 1875. *Aegyptische und abyssinische Arachniden gesammelt von Herrn C. Jickeli*. Verl. Bauer & Raspe, Nürnberg, 96 pp.

- LUCAS, S.M. & INDICATTI, R.P. 2015. Revalidation of *Dolichothele* Mello-Leitão and notes on *Haplotremus* Simon (Araneae, Mygalomorphae, Theraphosidae). *Studies on Neotropical Fauna and Environment* **50** (3): 204–212.
<http://dx.doi.org/10.1080/01650521.2015.1103553>
- MCCOOK, H.C. 1890. Defenses of burrowing spiders. *Popular Scientific Monthly* **38**: 189–193.
- MOGGIDGE, J.T. 1874. *Harvest ants and trap-door spiders*. Supplement. Reeve & Co., London. pp. 157–304.
- MELLO-LEITÃO, C.F. 1923. Theraphosideas do Brasil. *Revista do Museu Paulista* **13**: 1–438.
- PETRUNKOVITCH, A. 1928. Systema Araneorum. *Transactions of the Connecticut Academy of Arts and Sciences* **29**: 1–270.
- PLATNICK, N.I. 1993. *Advances in spider taxonomy 1988–1991, with synonymies and transfers 1940–1980*. The New York Entomological Society, New York, pp. 1–846.
- 2000. *World spider catalog*. Version 1.0. American Museum of Natural History, New York.
https://research.amnh.org/iz/spiders/catalog_1.0/index.html (accessed 15.11.2018).
- RAVEN, R.J. 1985. The spider infraorder Mygalomorphae (Araneae): Cladistics and systematics. *Bulletin of the American Museum of Natural History* **182**: 1–180.
<http://hdl.handle.net/2246/955>
- 1990. A revision of the Australian spider genus *Trittame* Koch (Mygalomorphae: Barychelidae) and a new related genus. *Invertebrate Taxonomy* **4** (1): 21–54.
<https://doi.org/10.1071/IT9900021>
- RAVEN, R.J. & SCHWENDINGER, P.J. 1995. Three new mygalomorph spider genera from Thailand and China (Araneae). *Memoirs of the Queensland Museum* **38**: 623–641.
<https://www.biodiversitylibrary.org/page/40060402#page/307>
- REIMOSER, E. 1919. Katalog der echten Spinnen (Araneae) des Paläarktischen Gebietes. *Abhandlungen der Zoologisch-Botanischen Gesellschaft in Wien* **10** (2): 1–280.
- ROEWER, C.F. 1942. *Katalog der Araneae von 1758 bis 1940*. Vol. 1. Natura, Bremen, p. 1–1040.
- SAVORY, T.H. 1928. *The biology of spiders*. Sidgwick & Jackson Ltd, London, 376 pp.
- SIMON, E. 1873. Aranéides nouveaux ou peu connus du midi de l'Europe (2e mémoire). *Mémoires de la Société Royale des Sciences de Liège* (2) **5**: 187–351 [1–174, in the available separate reprint cited here].
- 1889. Étude sur les espèces de la famille des Aviculariidae qui habitent le nord de l'Afrique. *Actes de la Société Linnéenne de Bordeaux* **42**: 379–397.
- 1890. Études arachnologiques. 22^e Mémoire. XXXIV. Étude sur les arachnides de l'Yemen. *Annales de la Société Entomologique de France* (6) **10**: 77–124.
<https://www.biodiversitylibrary.org/item/34134#page/83>
- 1892. *Histoire naturelle des araignées*. Vol. 1 (1). Roret, Paris, pp. 1–256.
- 1903. *Histoire naturelle des araignées*. Vol. 2 (4). Roret, Paris, pp. 669–1080.
- 1909. Étude sur les arachnides recueillis au Maroc par M. Martinez de la Escalera en 1907. *Memorias de la Real Sociedad Española de Historia Natural* (6) **1**: 5–43.
- SMITH, A.M. 1990. *Baboon spiders: Tarantulas of Africa and the Middle East*. Fitzgerald Publishing, London, pp. 1–142.
- UCHMAN, A., VRENOZI, B. & MUCEKU, B. 2018. Spider burrows in ichnological context: a review of literature data and burrows of the wolf spider *Trochosa hispanica* Simon, 1870 from Albania. *Scienze Fisiche e Naturali* **29**: 67–79.
<https://doi.org/10.1007/s12210-017-0662-7>
- WSC [WORLD SPIDER CATALOG]. 2018. *World Spider Catalog*. Version 19.5. Natural History Museum, Bern.
<http://wsc.nmbe.ch> (accessed 15 November 2018).
- ZONSTEIN, S. & MARUSIK, Y.M. 2013. Checklist of the spiders (Araneae) of Israel. *Zootaxa* **3671** (1): 1–127.
<http://dx.doi.org/10.11646/zootaxa.3671.1.1>