Redescription of *Trochosa urbana* (Araneae: Lycosidae) with notes on its distribution

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Abstract

A survey of specimens identified as *Trochosa urbana* O. Pickard-Cambridge, 1876, kept in the Zoological Museum, University of Turku, reveals that they belong to four species: *T. urbana*, *T. denticellus* Buchar, 1997, *T. ruricola* (De Geer, 1778), and *T. ruricoloides* Schenkel, 1963. *Trochosa urbana* is redescribed based on syntypes, and a lectotype male is designated. Our study found that the actual range of *T. urbana* is restricted to eastern Africa (from Egypt to the Seychelles) and Israel, and not stretching from Africa to India as was thought before. Four species and one subspecies are synonymized with *Trochosa urbana* O. Pickard-Cambridge, 1876. *Caporiaccosaurus arctosaeformis* (Caporiacco, 1940) synonymized with *Trochosa urbana* (Schenkel, 1906) *syn. n.*, *Geolycosa gofensis* (Strand, 1907) *syn. n.*, *Pirata molenis* Strand, 1908 *syn. n.*, and *Trochosa urbana* hova (Strand, 1907) *syn. n.* Two genera, *Caporiaccosaurus* Roewer, 1960 *syn. n.* and *Trochosippa* Roewer, 1960 *syn. n.* are synonymized with *Trochosa C. L. Koch, 1847*. For two species, we establish new combinations: *Trochosa meruensis* (Lessert, 1926) *comb. n.* *ex Trochosippa*, and *Hogna taurirtensis* (Schenkel, 1937) *comb. n.* *ex Pirata*. *Trochosa denticellus*, previously known from Bhutan, is reported from India. *Trochosa aquatica* Tanaka, 1985 is likely a junior synonym of *T. ruricoloides*. The latter species, previously known from China, is reported for the first time from India, Indonesia, Malaysia, Papua New Guinea, and Thailand.

Keywords: Africa • Asia • new combination • new country record • new synonym • Trochosini

Introduction

*Trochosa urbana* O. Pickard-Cambridge, 1876 is considered to be a widespread species, occurring from Africa to India (Saaristo 2010; World Spider Catalog 2020). However, this species lacks diagnostic figures or a proper written diagnosis that allow it to be separated from congeners. Identification of both sexes of *Trochosa* species, even in well-studied areas such as Europe, is difficult, and especially so for females. Therefore, it is unclear how arachnologists have previously been able to identify specimens as *T. urbana* considering that all existing figures of the epigyne are not similar to each other (compare figs. 7a–e in Nentwig et al. 2019). We found no reference of who reported *T. urbana* from India other than the information provided in Roewer’s catalog (Roewer 1955a: 241). While working in the Zoological Museum in Turku (ZMUT), we found numerous specimens identified as *T. urbana* from China, India, Indonesia, Malaysia, Philippines, the Seychelles, Thailand, Turkey, and Vietnam. Examination of this material revealed four morphospecies. To determine the true *T. urbana* and to provide a detailed redescription of this species, we borrowed the syntypes from the Oxford University Museum of Natural History. Comparison of the types with the four morphospecies from the ZMUT revealed that only specimens from the Seychelles can be considered *T. urbana*.

The goals of this paper are to provide diagnostic figures of *Trochosa urbana*, discuss its diagnostic features, and comment on five subspecies assigned originally to *T. urbana*, some of which are considered to be in different sub-families of Lycosidae (Lycosinae and Zoiciniae).

Material and methods

Specimens were photographed using an Olympus Cameca E-520 camera attached to an Olympus SZX16 stereomicroscope or to the eye piece of an Olympus BH2 transmission microscope, and an SEM JEOL JSM-5200 scanning electron microscope at the Zoological Museum of University of Turku, Finland. Digital images were prepared using CombineZP image stacking software. Illustrations of internal genitalia were made after clearing them in a 10% KOH aqueous solution. Lengths of leg segments were measured on the lateral side. All measurements are given in millimeters.

Depositories: OUMNH = Oxford University Museum of Natural History, ZMMU = Zoological Museum of Moscow University, ZMUT = Zoological Museum of University of Turku.

We identified four species from the examined specimens at ZMUT, all previously identified as *Trochosa urbana*: *T. urbana*, *T. denticellus* Buchar, 1997, *T. ruricola* (De Geer, 1778), and *T. ruricoloides* Schenkel, 1963. The collecting localities of these species do not overlap. Below, we provide a redescription of *T. urbana* as well as figures of species previously confused with *T. urbana*.

Supplementary Figures for this paper are available at Zenodo (https://zenodo.org) doi: 10.5281/zenodo.3862822.

*Trochosa urbana* O. Pickard-Cambridge, 1876 (Figs. 1a–c, 2a–d, 3a–c, 4a–c,g, 5; Supplementary Figs. 1–2, 3A–B, D, 4C–D, 5C)

*Trochosa urbana* O. Pickard-Cambridge, 1876: 601, pl. 60, f. 14 (♀).
Tarentula urbana: Strand (1908a): 337; (1908b): 49, pl. 2, f. 19 (♀). Lycosa urbana: Lessert (1915): 61, pl. 3, f. 69–71, 76, 78 (♂♀); Denis (1947): 32, pl. 1, f. 6–7 (♂♀). Geolycosa urbana: Roewer (1955a): 241; (1960): 697, f. 390a–c (♂♀). Trochosaurus urbana: Saaristo (2010): 88, f. 14.7–9 (♂♀); Zonstein, Marusik & Omelko (2015): 378 (transferred from Geolycosa); Nentwig et al. (2019): 40, f. 7a–d (♀).

Types: Lectotype ♂ designated here (OUMNH), with label ‘B1573, t25, Egypt, Alexandria’; paralectotypes 2♀ (OUMNH), same locality as for lectotype, examined. Eight syntypes (paralectotypes) from same locality, not examined.

Other material examined: SEYCHELLES (coll. BirdLife): 1♂ 1♀ (ZMUT AA1.411), Arride Is., 2000; 4♂ 1♀ (ZMUT AA1.408), Arride Is., 2000; 3♀ (ZMUT AA1.409), Arride Is., 2000; 1♀ (ZMUT AA1.407), Arride Is., 2000; 1♂ 1♀ (ZMUT AA1.573), Cousin Is., 05 December 1999; 1♂ 2♀ (ZMUT AA1.571), Denis Is., 07 April 2000; 1♀ (ZMUT AA1.572), Denis Is., 07 October 1999.

Diagnosis: Males of T. urbana can be distinguished from other congeners with a tooth on the fang by the coloration of leg I and the shape of the tegular apophysis. In T. urbana, tibia I is yellow (v. black or brown in T. hispanica (Simon, 1870) and T. turicola, see Marusik & Nadolny 2020: fig. 3 B–C,F), and the tegular apophysis lacks an anterior protrusion (v. with protrusion in T. dentichelis and T. turicolooides, cf. Figs 2a–c and 2e–g–h). In addition, T. urbana differs from T. dentichelis by lacking spines on the tibia and cymbium (v. 1–2 spines on the prolaternal side of the cymbium and 2 spines and 1 spine on the prolateral and dorsal sides of the tibia, respectively). Females of T. urbana are indistinguishable from those of T. dentichelis and T. turicolooides.

Description: Measurements of the types: Male (lectotype): total length 7.6; carapace 4.1 long, 3.0 wide; length of leg I 11.1 (2.9, 1.6, 2.5, 2.3, 1.8). Paralectotype ♂: total length 10.0; carapace 4.9 long, 3.8 wide; length of Fe I 3.5.

Specimens from Seychelles. Males (n = 8). Total length 4.8–7.0; carapace 2.8–4.0 long, 2.2–2.8 wide; Fe I 1.9–2.9 long. Fang with strong tooth (Fig. 1c). Leg I spination: Fe d1–1–1, p2, r1–1–1; Ti p1–1, r1–1, v2–2–2a; Mt p1–1a, r1–1a, v2–2–3a.

Palp as in Figs 1a, 2a–d, 3a–c. Distal part of cymbium conical with straight edges; tip with claw. Anterior side of tegular apophysis flat. Tip of embolus curved toward the synembolus.

Females (n = 5). Total length 7.2–9.6; carapace 3.2–4.8 long, 2.2–3.7 wide; length of Fe I 2.2–3.2. Spination as male.

Epigyne as in Figs 4a–c,g. Anterior hoods deep, curved inward, their tips converging, widely separated by the approximate distance of the narrowest part of septum. Septum as long as wide, stalk widest anteriorly. Width of receptacles equal to width of septal stalk. Receptacle supplied with massive conical gland (Rg).

Remarks: Femur I spination varies and can be 1, 2, or 3 retrolateral spines. Therefore, species cannot be separated using spination. Carapace/femur I length ratio greatly varies. The specimens from Egypt (types) are larger than those from the Seychelles, although some insular specimens are similar in size (Fig. 5). We found no distinct differences in the body proportions between T. urbana and sibling species (Fig. 5).

Distribution: According to the material studied, this species is limited to eastern Africa, occurring from Egypt to the Seychelles, and seems to be present on Nosy Be Island north of Madagascar. In Asia, it has been properly documented in Israel only. A record of this species from Iran (Roewer 1955b) seems to refer to either T. turicola or T. hispanica (see Marusik & Nadolny 2020).

Trochosa denticelais Buchar, 1997 (♀) (Figs. 1f, 2g–i, 3d, 4e, 5)

Trochosa denticelais Buchar, 1997: 29, f. 30–34 (♀♀).

Types: Holotype ♂ and paratypes 3♀ (Naturhistorisches Museum, Basel), Bhutan, Sampa-Kothoka, 1400–2600 m, 9.06.1972 (W. Wittmer). Photos made by A. Hänegi examined.

Material examined: INDIA: 1♂ (ZMUT), Punjab, Patiala City, university campus, 30°21’N 76°27’E, 03–08 May 1999 (Y. M. Marusik); 16♂ 23♀ (ZMUT & ZMMU), Himachal Pradesh, Patlikhu Town, 32°07’.4’N 77°08’.8’E, 1200 m, 01–07 and 28–29 May 1999 (Y. M. Marusik). Uttarakhand Pradesh: 2♀ (ZMMU), Govind Ghat Vill., 30°37’.5’N 79°33’.5’E, 1750–1900 m, 17–23 May 1999 (Y. M. Marusik); 2♀ (ZMUT), Dehradun City, Forest Research Institute campus and
Redescription of *Trochosa urbana* nearby, 30°20.5′N 78°00′E, 660 m, 6–13 May 1999 (Y. M. Marusik).

**Remarks:** This species is known from a single taxonomic entry and only from Bhutan. In the original description it was compared with *T. ruricola*. We are not absolutely sure that our specimens are conspecific with the holotype of *T. denticelis*.

**Diagnosis:** Males of this species can be distinguished from other species with a tooth on the fang by the shape of the cymbium, tegular apophysis, and embolus. Cymbial length/width ratio in *T. denticelis* is 2.4 (v. 1.8–2.2 in other species). The anterior side of the tegular apophysis has a protrusion (Pr), and the posterior side is rounded (Pt) (Fig. 2g–h) (v. without a protrusion and posterior side slightly curved or with well-developed, rounded protrusion in *T. ruricoloides*). Embolus and synembolus are parallel in *T. denticelis* (Fig. 3d) (v. tip of embolus slightly curved toward the synembolus or coiled). In addition, this species differs from congeners by having 1–2 spines on the prolateral side of the cymbium (Fig. 1f). Females of *T. denticelis*, *T. urbana*, and *T. ruricoloides* are indistinguishable.

Fig. 2: Left palps of *Trochosa urbana* (a lectotype, b–d from Seychelles), *T. ruricoloides* (e–f, from Thailand), and *T. denticelis* (g–i, from India). a–b, g palp, ventral view; c, e, h bulb, ventral view; d, f, i bulb, anterior view. Scale bars = 0.2 mm. Abbreviations: Pr = protrusion on anterior side of tegular apophysis, Pt = rounded posterior side of tegular apophysis.
Description: Measurements. Males (n = 5). Total length 6.4–8.0; carapace 3.2–4.2 long, 2.3–3.0 wide; Fe I 2.8–3.4. Females (n = 5). Total length 7.5–11.5; carapace 4.0–4.4 long, 2.9–3.2 wide; Fe I 2.7–3.1. For detailed description see Buchar (1997).

Male palp and epigyne as in Figs. 1f, 2g–i, 3d, 4e.

Distribution: This species was known only from Bhutan (type locality) and India. It is reported from India for the first time, and the new records extend the known range by ~1200 km to the northwest, indicating it may be found elsewhere.

Trochosa ruricoloides Schenkel, 1963 (Figs. 1d–e, 2e–f, 4d, 5)

Trochosa ruricoloides Schenkel, 1963: 350, f. 202a–b (♂).

Trochosa ruricoloides: Yin et al. (1997): 157, f. 74a–g (♂♀); Tso & Chen (2004): 407, f. 34–36 (♂♀); Yin et al. (2012): 822, f. 412a–g (♂♀).

For complete list of references see World Spider Catalog (2020).

Types: Holotype ♂ (may be in the Muséum National d’Histoire Naturelle, Paris), China, “Yunnan fù”, 26 February 1925 (A. Pichon). Not examined.

Material examined: INDIA: 1♂ 2♀ (ZMUT AA8.075), Meghalaya, East Khasi Hills Umtyngka, 1400 m, 06 May 1979 (P.T. Lehtinen). CHINA: 1♂ 1♀ (ZMUT AA7.351), Sichuan, Emei Mts, 550 m, Hongzhushan, 25 September–19 October 1987 (Yu Liuming); 1♀ (ZMUT AA7.350), Yunnan, Kunming Co Mingfeng Hill Golden Temple Park, 12 October 1987 (P.T. Lehtinen); 1♀ (ZMUT AA7.354), Yunnan, Kunming Gaogiao, 28 September 1987 (P.T. Lehtinen). THAILAND: 1♂ 6♀ (ZMUT AA8.074), P. Pr Phitsanulok, 17 November 1976 (P. T. Lehtinen); 1♂ (ZMUT AA8.076), P. Pr Phitsanulok, 20 November 1976 (P.T. Lehtinen); 2♂ (ZMUT AA8.083), P. Pr Phitsanulok, 24 October–18 November 1976 (P. T. Lehtinen); 1♂ 3♀ (ZMUT AA8.261), P. Pr Phitsanulok, 17 November 1976 (P. T. Lehtinen); 1♂ (ZMUT AA8.079), Chiangmai Pr. Doi Suthep, 16 November–30 December 1976 (P. T. Lehtinen); 5♂ 5♀ (ZMUT AA8.073), P. Pr Phetchabun, 28 October–20
Redescription of Trochosa urbana

November 1976 (P. T. Lehtinen). MALAYSIA: 5♂ 2♀ (ZMUT AA7.360), Pulau Pinang Batu Ferringgi, 29 October–13 November 1976 (P. T. Lehtinen). INDONESIA: 1♂ 2♀ (ZMUT AA8.260), Sulawesi Utara, Gorontalo Distr., Datahu, 24 October 1979 (P. T. Lehtinen); 3♂ (ZMUT AA7.359), Sumatra, Barat Distr., Padangpanjang Kotobaru, 28–29 October 1978 (P. T. Lehtinen); 1♂ (ZMUT AA8.256), Nusa Tenggara Timur Flores, Manggarai Distr., Ruteng, 15 October 1979 (P. T. Lehtinen). PAPUANEW GUINEA: 2♂ 2♀ (ZMUT AA8.077), Morobe d. Wau, 08 March–02 April 1974 (P. T. Lehtinen).

Diagnosis: Males of T. ruricoloides can be distinguished from other species with a tooth on the fang by having a well-developed protrusion (Pr) on the anterior side of the tegular apophysis (Fig. 2e) and lacking prolateral cymbial spines (v: protrusion absent, or cymbium with 1–2 prolateral spines in T. denticelis). Females of T. ruricoloides, T. denticelis, and T. urbana are indistinguishable.

Description: Males from Thailand (n = 5). Total length 4.9–5.5; carapace 2.6–3.0 long, 1.9–2.3 wide; Fe I 2.0–2.4 long. Females from Thailand (n = 5). Total length 6.5–8.5; carapace 2.8–3.6 long, 2.0–2.9 wide; Fe I 2.0–2.6 long. Detail descriptions see Tso & Chen (2004) and Yin et al. (2012).

Remarks: Considering the published figures of T. aquatica Tanaka, 1985 from Japan, China, and Korea, it could be a junior synonym of T. ruricoloides.

Distribution: This species previously was known from mainland China and Taiwan (World Spider Catalog 2020), but our data indicate that the actual range is much broader. It is distributed across South-east Asia, occurring from eastern India to Papua New Guinea. This species is reported here for the first time from India, Indonesia, Malaysia, Papua New Guinea, and Thailand.

Trochosa ruricola (De Geer, 1778) (Figs. 1g, 3e–h, 4f, 5) Trochosa ruricola: Engelhardt (1964): 222, f. 4–5, 8 (♂); Fuhn & Niculescu-Burlacu (1971): 226, f. 111a–f (♂); Almquist (2005): 247, f. 242a–f (♂).
Y. M. Marusik, A. A. Nadolny & S. Koponen

For complete list of references see World Spider Catalog (2020).

Material examined: CHINA: 12♂ 13♀ (ZMUT AA7.353 & AA7.349), Beijing, Summer Palace, 20 September–23 October 1987 (P. T. Lehtinen).

Diagnosis: Males of T. ruricola can be distinguished from other species with a tooth on the fang by the shape of the tegular apophysis and the cymbium: the anterior side of the tegular apophysis is sinuous in ventral view (Fig. 3f–g) (v. straight or with a protrusion), the cymbial length/width ratio is 1.8 (v. ≥ 2). The ratio in T. hispanica is the same, but the tip of the embolus is coiled (Marusik & Nadolny 2020: fig. 5) (v. in T. ruricola the embolus is slightly curved toward the synembolus, 3e–g). Females of T. ruricola are most similar to those of T. hispanica. They are distinguished by the position of the epigynal hoods: in T. ruricola they are separated (Fig. 4f), while in T. hispanica they are touching each other (Marusik & Nadolny 2020: fig. 6).

Description: Males (n = 5). Total length 7.5–9.7; carapace 3.8–4.6 long, 2.7–3.2 wide; Fe I 2.4–3.4 long. Females (n = 5). Total length 9.3–11.2; carapace 4.4–4.8 long, 3.1–3.2 wide; Fe I 2.8–3.0 long. For a detailed description see Engelhardt (1964).

Distribution: This species has a Transpalaearctic range and is known from Europe to Japan. According to the World Spider Catalog (2020), it has been introduced to North America, Cuba, Puerto Rico, and Bermuda.

Survey of former subspecies of Trochosa urbana

The catalog of Bonnet (1959) provides a list of six additional subspecies of T. urbana: Tarentula urbana molensis Strand, 1906, Tarentula urbana gosensis Strand, 1906, Tarentula urbana hova Strand, 1907, Tarentula urbana sarsi-barensis Strand, 1913, Lycosa urbana meruensis Lessert, 1926, and Lycosa urbana taurniensis Schenkel, 1937.

All subspecies of T. urbana were transferred to other genera by Roewer (1960). Roewer (1960) even described a new genus, Trochospippa, with a type species of Lycosa urbana meruensis Lessert, 1926. All of these subspecies, except Trochosa u. hova, were elevated to species level and placed in four different genera (World Spider Catalog 2020), some of which belong to different subfamilies:

- Geolycosa Montgomery, 1904, Hogna Simon, 1885, Pirata Sundevall, 1833, and Trochosippa Roewer, 1960.
- While searching for different figures of T. urbana subspecies, we noticed that the monotypic genus Caporiaccoscosa Roewer, 1960 was described based on a subadult female and is distributed within the range of T. urbana. Thus, we synonymize both the genus and species (comments below).
- Below, we list former or current subspecies of Trochosa urbana in alphabetic order. In the heading we provide the species name in combination with the genus name as it appears in the World Spider Catalog (2020).

Geolycosa gobensis (Strand, 1906) = Trochosa urbana O. Pickard-Cambridge, 1876 (Supplementary Figs. 1A, 3A–B,D)

Tarentula urbana gobensis Strand, 1906: 685 (♀), syn. n.
Tarentula urbana gobensis: Strand (1908b): 50, pl. 2, f. 20 (♀).
Lycosa urbana gobensis (?): Lessert (1926): 343, f. 6A, 7A, 8 (♀♀).
Trochosa urbana gobensis: Caporiacco (1947): 121.
Geolycosa gobensis: Roewer (1955a): 242.
Geolycosa gobensis: Roewer (1960): 701, f. 392a–c (♀♀, elevated from subspecies); World Spider Catalog (2020).

Remarks: This species was described based on a female from Gofa (Ethiopia) collected by the German ornithologist Oskar Neumann. He also collected the holotype male of Tarentula urbana molensis not far away (c. 40 miles) from the type locality of T. u. gobensis. Figures of the epigyne by Strand (1908b) and Lessert (1926) are somewhat different from one another, and Lessert (1926) doubted his identification.

There is contradictory information regarding deposition and number of type specimens. Roewer (1960: 702) mentioned a holotype ♀ and an allotype ♂, not mentioned in Strand (1906, 1908b), belonging to the ‘Mus. Berlin’, although the World Spider Catalog (2020) indicated that the type belonged to the Stuttgart Museum and was destroyed in 1944. Strand (1908b) mentioned that there are several females from Gofa. The total length of the specimen is 9 mm (carapace 4.7 long).
**Trochosa meruensis** (Lessert, 1926) comb. n. (Supplementary Figs. 3B–C, 5A–B)

*Lycosa urbana meruensis* Lessert, 1926: 341, f. 6B, 7B (♀♂).
*Trochosa meruensis*: Roewer (1960): 919, f. 510a–c (♀♂, elevated from subspecies).

**Remarks**: This species was described based on numerous specimens from Mt Meru (Tanzania) collected at elevations of 3000–3500 m. The female is 9 mm long (carapace 4.5 mm), and the male is 7 mm long (carapace 4 mm long). The description is accompanied by appropriate figures showing that this (sub)species is similar to *T. urbana*, the type of which was studied and illustrated by Lessert (1915). There is contradictory information about the type deposition. The World Spider Catalog (2020) stated that syntypes 2♂ and 3♀ are in the Senckenberg Museum, but Roewer (1960) mentioned 2♀ and 5♀ from Genf (= Geneva). Considering that *Lycosa urbana meruensis* is a type species of *Trochosa* Roewer, 1960, we designate this genus a junior subjective synonym of *Trochosa*. It is likely that the seven species of *Trochosa* Roewer, 1960 syn. n. known from Africa belong to *Trochosa*, while the species *Trochosippa malayana* (Doleschall, 1859) (Indonesia, Ambon) and *T. obscura* (Mello-Leitão, 1943) (Argentina) belong elsewhere.

**Pirata molensis** Strand, 1908 = *Trochosa urbana* O. Pickard-Cambridge, 1876

*Tarentula urbana molensis* Strand, 1908b: 48 (♀), syn. n.
*Pirata molensis*: Roewer (1955a): 285.
*Pirata molensis*: Nentwig et al. (2020): 24 (nomen dubium); World Spider Catalog (2020).

**Remarks**: This species was described based on the holotype male from southern Ethiopia (Mole Tal). It has never been illustrated. The type locality of *Tarentula urbana molensis* is near to (40 miles) those of *Tarentula urbana goffensis*, a species described based on a female. According to Strand (1908b) the total length of the holotype is 7 mm, and the carapace 4.1 mm long. Strand (1908b) compared the details of his subspecies with *T. urbana*. *Trochosa* differs considerably from *Pirata* by the male palp and size (Pirata is smaller). Therefore, the transfer of this species to *Pirata* by Roewer (1955a) was unjustified. Considering that the holotype of this species is lost (Nentwig et al. 2019), the size of the species corresponds to those in *T. urbana*, the similarity of epigyne to *T. urbana*, and the fact that the type locality lies within the range of *T. urbana*, we synonymize these two names.

**Hogna sansibarensis** (Strand, 1907) = *Trochosa urbana* O. Pickard-Cambridge, 1876 (Supplementary Fig. 4C)

*Tarentula sansibarensis* Strand, 1907: 743 (♀), syn. n.
*Lycorma sansibarensis*: Roewer (1955a): 266; Roewer (1960): 787, f. 437 (♀).

**Remarks**: This species was transferred to *Hogna* via the synonymy of *Lycorma* and *Hogna*. Roewer studied the type of this species in Berlin, probably before WWII. According to Nentwig et al. (2019), the types of this species are lost. Based on the small size of the carapace (4.2 mm), it does not belong in *Hogna*. Considering that the types are lost, the type locality lies within the range of *Trochosa urbana*, and the carapace length of the type is within the size range of *T. urbana*, we synonymize these two names.

**Hogna taurirtensis** (Schenkel, 1937) comb. n. (Supplementary Fig. 4A–B)

*Lycosa urbana taurirtensis* Schenkel, 1937: 395, f. 10 (♀).
*Pirata taurirtensis*: Roewer (1955a): 286; Roewer (1960): 829, f. 458 (♀); World Spider Catalog (2020).

**Remarks**: This species was described from Morocco, and the holotype is in Basel (Roewer 1960). It is unclear why Roewer (1955a, 1960) transferred this species to *Pirata*. It is much too large (16.5 mm) to belong to *Pirata*, and the epigyne has a distinct fovea, anterior hoods, and septum, which are lacking in *Pirata* (Zoicinidae). Roewer (1955a, 1960) did not examine the holotype of this species but rather reproduced Schenkel’s figure with some modifications (see Supplementary Fig. 4A–B). Based on the large size, the type locality (Morocco), and the shape of the epigyne, this species likely belongs in *Hogna* or *Geolycosa*. Because of its similarity to *Hogna ferox* (Lucas, 1838), we transfer this species to *Hogna*. It might be a synonym of *Hogna ferox*.

**Trochosa urbana hova** (Strand, 1907) = *Trochosa urbana* O. Pickard-Cambridge, 1876 (Supplementary Fig. 4D)

*Tarentula urbana hova* Strand, 1907: 744 (♀), syn. n.
*Geolycosa urbana hova*: Roewer (1955a): 242; Roewer (1960): 700, f. 391 (♀).
*Trochosa urbana hova*: Nentwig et al. (2019): 40, f. 7e (f, subspecies inquirenda).

**Remarks**: This species was described based on the holotype female from the Nosibe (= Nosy Be, an island of Madagascar). The size of the holotype, according to Roewer (1960), is 12 mm, a 4 mm carapace and 8 mm abdomen. Such body proportions (abdomen twice as long as the carapace) are unknown in *Lycosidae*. Thus, Roewer’s measurements seem to be incorrect, and the abdomen can only be a maximum of 6 mm in length. According to Nentwig et al. (2019), the holotype of this species was destroyed in Lübeck in 1942; however, according to Roewer (1960), he examined and illustrated the type stored in the Senckenberg Museum (No. 2253). Considering that the carapace length is the same as that of *T. urbana*, and the type locality is near the known range of *T. urbana*, we synonymize these two names.
**Caporiacco** Roewer, 1960 = **Trochosa** C. L. Koch, 1847

*Caporiacco* Roewer, 1960: 928, syn. n.

**Type species:** *Trochosina arctosaeformis* Caporiacco, 1940 considered a junior synonym of *Pirata* Sundevall, 1833 by Guy (1966: 63).

**Remarks:** This is a monotypic genus whose type species is known from the holotype juvenile female. Caporiacco (1940) described the type species of *Caporiacco* as *Trochosina* Simon, 1885 (type *T. terricola* Thorell, 1856), a genus now considered a junior synonym of *Trochosa*. The longitudinal stripes on the light median band of the habitus in Roewer’s (1960) figure of the holotype of *Trochosina arctosaeformis*, and the original placement of the species, leave no doubt that it belongs to *Trochosa*. Therefore, we synonymize the two genera.

**Caporiacco arctosaeformis** (Caporiacco, 1940) = *Trochosa urbana* O. Pickard-Cambridge, 1876 (Supplementary Fig. 5C)

*Trochosina arctosaeformis* Caporiacco, 1940: 798 (juv.), syn. n. *Paratrochosina arctosaeformis* Roewer (1955a): 282.

*Caporiacco arctosaeformis*: Roewer (1960): 928, f. 516 (habitus figure).

**Remarks:** Given that the holotype is a juvenile female with a pattern typical to *Trochosa*, and the type locality, Ethiopia, is within the range of *T. urbana*, we synonymize these names.

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