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New data on *Parasyrisca* (Araneae: Gnaphosidae) from Mongolia

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Abstract

Three new species of *Parasyrisca* Schenkel, 1963 belonging to the *potanini*-group are described from Western Mongolia: *P. platnicki* **sp. n.**, *P. polchaninovae* **sp. n.** and *P. szinetari* **sp. n.** Each species description is based on both sexes. Both the male and female of *P. platnicki* **sp. n.** possess some copulatory organ characters unknown in other species of the genus. The previously unknown female and the poorly known male of *P. khubsugul* Ovtsharenko, Platnick et Marusik, 1995 are described and redescribed respectively, the descriptions being based on the specimens found in Arkhangai and Bayankhongor Aimags. The structures of copulatory organs in *Parasyrsca potanini*-group are briefly discussed.

Key words: Aranei, Asia, scree, new species, new record, unknown female

Introduction

Parasyrisca Schenkel, 1963 is one of the best studied Holarctic gnaphosid genera due to the global revision by Ovtsharenko *et al.* 1995 as well as several regional reviews (Marusik & Fomichev 2010, 2016; Fomichev *et al.*, 2018, etc.). Currently 54 species are known in the genus (World Spider Catalog 2019). Of them, only one, *P. orites* (Chamberlin & Gertsch, 1940), is known from the Western Nearctic, other species are found within the Palaearctic (Fomichev *et al.* 2018). Many, if not the most species, have very local distribution and occur in mountain screes (Fomichev *et al.* 2018). It is therefore not a subject of surprise that collections in remote and isolated mountains reveal a new and undescribed species. During visit of Western Mongolia in 2017, A. Fomichev collected on different mountain ridges in Govi-Altai, Khovd, and Bayan-Ölgii Aimags and found three species of *Parasyrisca* new to science. In addition to these, we found specimens of the previously unknown female of *P. khubsugul* Ovtsharenko, Platnick et Marusik, 1995 among material collected in 1997. While studying our specimens we recognized several features of the male palp and epigyne not properly documented in the previous publications. The main goals of this paper are therefore as follows: 1) description of three new species, 2) description of the previously unknown female of *P. khubsugul*, 3) redescription of details of the male of *P. khubsugul* previously known only by the holotype male, 4) provision of new data on distribution of *P. khubsugul* known earlier only from the type locality, and 5) discussion of the structure of the male palp and epigyne of *Parasyrisca*.

Material and methods

Specimens were photographed with a Canon EOS 7D camera attached to an Olympus SZX16 stereomicroscope and with a SEM JEOL JSM-5200 scanning microscope at the Zoological Museum, University of Turku, Finland and digital images were montaged using the "Zerene Stacker" image stacking software. Epigynes were cleared in a 10% KOH/water solution until soft tissues were dissolved. Photographs were taken in dishes with an additional cotton bottom layer to hold the specimens in appropriate position. All measurements are given in millimetres. Abbrevia-

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tions used are as follows: Fe-femur, Pt-patella, Mt-metatarsus, Ti-tibia, Ta-tarsus, d-dorsal, p-prolateral, r-retrolateral, v-ventral. Data regarding spination is based on an examination of one specimen of each species (one side of the body). Apical spines on tibia and metatarsus III and IV are not counted.

Names of Aimags, the largest administrative units in Mongolia, are given in Bold Italics. The material examined is deposited in the Institute of Systematics and Ecology of Animals SB RAS, Novosibirsk, Russia (ISEA) and in the Zoological Museum of the Moscow State University, Russia (ZMMU).

Taxonomic survey

Parasyrisca Schenkel, 1963

Parasyrisca Schenkel, 1963: 261; Ovtsharenko & Marusik 1988: 214; Ovtsharenko *et al.* 1995: 3; Murphy 2007: 58, f. 484–485; Marusik & Fomichev 2016: 111; Fomichev *et al.* 2018: 155–168.

Ovtsharenko *et al.* (1995) while diagnosing *Parasyrisca* listed the following characters of the copulatory organs that allow this genus to be distinguished from other gnaphosids: "a short embolus supported by a variously shaped conductor; a flat or conical retrolateral tibial apophysis ..., a single, wide anterior atrial hood and elevated posterior ridge or raised median septum on the epigynum; elongated, curved spermathecal ducts with anteriorly situated heads". In our opinion none of these characters are adequate in allowing the identification of *Parasyrisca*.

Embolus. *Parasyrisca platnicki* **sp. n.** (Figs 3a, d, 8) has long filamentous embolus. Members of *P. vinosa*-group, as well as *P. khubsugul* Ovtsharenko *et al.*, 1995 (Figs 7c–f) have rather large emboli. The unique characters in *Parasyrisca* (except for *P. vinosa*-group) is that the embolus emerges mesally, is directed antero-prolaterally (anticlockwise), and is hidden, at least at the base by a membranous part of the tegulum. Other gnaphosids have the embolus (at least the tip) directed retrolaterally (clockwise), the whole embolus, including its base, well visible (not hidden by tegulum). *Odontodrassus* sp. (cf. Murphy 2007: 369) also has its embolus directed anticlockwise, but it is not hidden by any sclerite.

Conductor. Many genera of Gnaphosidae possess variously shaped conductors, but none of them have their conductor located both "prolaterally" and "more prolaterally than the embolus". All gnaphosids known to us have conductor retrolateral to their embolus, and most of these conductors are on retrolateral side of the tegulum.

***Tibial apophysis*.** Most of gnaphosids have a conical apophysis, while in *Parasyrisca* only one group, *guseripli*, possesses such a type. A flat tibial apophysis is known at least in *Haplodrassus* Chamberlin, 1922 (cf. Omelko & Marusik, 2012: figs 16–19) and *Phaeocedus* Simon, 1893 (cf. Murphy 2007: p. 289), but in these genera the apophysis is an anterior extension of the tibia and adjoins to the cymbium, while in *Parasyrisca* it is squarrose (Figs 2a–c, e–g, 3a–c, e–g).

Anterior hood (=pocket). *Parasyrisca vinosa*-group and *P. platnicki* **sp. n.** each have two hoods mesally fused.

Posterior ridge (=posterior pocket). Posterior ridge is absent in some species of *P. guseripli*-group, *P. golyakovi* Marusik & Fomichev, 2016 and *P. marusiki* Kovblyuk, 2003.

Endogyne. The homologies of endogynal structures are not absolutely clear, but it seems that the copulatory ducts are very short and lead to each receptacle located anteriorly from copulatory opening (in majority of the gnaphosids the receptacles are located posteriorly from the openings). In addition the "spermathecal ducts" (termed by us as "receptacular ducts") are very long, wide and heavily sclerotized in *P. potanini*-group, sometimes as wide as each receptacle, and apparently serve as fertilization ducts (small and membranous in all other gnaphosids).

Such different structures of the male palp and epigyne within the genus most likely indicate that *Parasyrisca* is not a monophyletic taxon and can be split into several genera (e.g., each species group may be a separate genus.). Different conformations of copulatory organs do not allow us to make a proper diagnosis that will cover all species.

Homology of the bulbal sclerites. Ovtsharenko *et al.* (1995) recognize four separate sclerites within the bulb: embolus, conductor, terminal and tegular apophyses. The descriptive terms we use are related to: 1) function: transfer of sperm (embolus), support and guiding of embolus (conductor), 2) position (terminal apophysis) and 3) homology (tegular apophysis). Both apophyses have terminal positions, and originate from the same base (Figs 7a–f), and seem unrelated to or not belonging to the tegulum. In addition, the embolus originates from the terminal apophysis (Fig. 7f). In our view both terminal and the so-called tegular apophyses are part of the embolic division.

The tegular apophysis homologous to that in *Gnaphosa* Latreille, 1804, *Haplodrassus*, *Drassodes* Westring, 1851 and many other genera is missing in *Parasyrisca*.

Affiliation of *Parasyrisca*. Ovtsharenko *et al.* (1995) placed this genus close to *Orodrassus* Chamberlin, 1922 due to the somatic characters, although only two of them, "eye position and cheliceral armature", have been mentioned. Both genera are considered by Ubick *et al.* (2005) to belong to the ill-defined "Drassodinae". Murphy (2007) placed the genus in the informal "*Haplodrassus* group" together with *Haplodrassus*, *Orodrassus* and some other genera. The most recent paper with cladistic analysis of Gnaphosidae (Azevedo *et al.*, 2017) lists *Parasyrisca* among "unplaced" genera. Judging from the conformation of the copulatory organs, as well as the unusual spination of tibia I and the relatively closely spaced anterior lateral spinnerets, this genus may belong to a separate subfamily or even an entire family.

Comments. Ovtsharenko *et al.* (1995) recognised in *Parasyrisca* four species groups: *potanini*, *vinosa*, *guzeripli* and *breviceps*. These groups are not evenly distributed. On the one hand, the *potanini*-group is spread almost throughout the Palaearctic and is also known from Western Nearctic. On the other hand, the distribution of the *breviceps*-group is confined to a small area of the Ghissar-Alai and Pamir Mountains in Central Asia. All species groups with the exception of the *breviceps*-group have a strongly disjunct ranges. The distribution of all species groups is discussed in detail by Fomichev *et al.* (2018). Diagnoses of species groups are provided in Ovtsharenko *et al.* (1995) but they need to be clarified because structures of male palps and epigynes are insufficiently detailed. Ovtsharenko *et al.* (1995) did not noted that the males of *Parasyrisca*, at least of the *potanini*-group, have legs covered by elongated hairs.

Species survey

***Parasyrisca polchaninovae* sp. n.**
Figs 2a–d, 4a–c, 5h, 6e–h, 9a–c, 10a, 11

Types. Holotype ♂ (ZMMU) MONGOLIA, ***Khovd Aimag***, Bumbat-Khairkhan-Bogd Mt. Range, Degnuult Mt. (47°12'N, 93°08'E), stony alpine meadow, 3000–3200 m, 24.06.2017 (A.A. Fomichev). Paratypes: 2♂ 1♀ (ZMMU), 3♂ (ISEA) together with the holotype.

Etymology. The specific name is a matronym in honour of Nina Yu. Polchaninova (Kharkov, Ukraine), the well-known Ukrainian araneologist.

Diagnosis. The male of *P. polchaninovae* **sp. n.** differs from the similar *P. szinetari* **sp. n.** by thinner conductor (cf. Figs 4b, 6e and 4e, 6a) and claw-like embolus (Figs 5h, 6g, h) vs. rectangular embolus composed of 2 parts (Figs 6b–d). The female of *P. polchaninovae* **sp. n.** differs by having a thin arch-shaped posterior pocket of the epigyne (Figs 9a–c) vs. wide anchor-like posterior pocket (Figs. 9d–f) and possessing of receptacular heads of a kind lacking in sibling species.

Description. Male (holotype). Total length 9.0. Carapace 4.0 long, 3.25 wide. Colouration: carapace brown. Sternum, labium, endites and chelicerae dark brown. Palps: Fe–Pt pale yellow, Ti and cymbium yellow-brown. Legs yellow, darkened distally. Mt–Ta of leg I brown. Abdomen and spinnerets yellow-gray. Leg spination: I: Fe d2 p1, Ti v4, Mt v2; II: Fe d2 p2, Ti v3, Mt v2; III: Fe d2 p2 r1, Ti p3 r2 v5, Mt d1 p1 r1 v2; IV: Fe d2 p2 r1, Ti p2 r2 v5, Mt d2 p1 r1 v2. Leg measurements: I 14.95 (4.00, 2.10, 3.80, 3.05, 2.00); II 12.65 (3.45, 1.90, 3.00, 2.50, 1.80); III 11.05 (3.00, 1.65, 2.50, 2.25, 1.65); IV 15.10 (4.25, 1.80, 3.65, 3.40, 2.00).

Palp as in Figs 2a–d, 4a–c, 5h, 6e–h. Tibia with apophysis bearing transverse ridge on posterior part. Cymbium elongate droplet shaped, 2 times longer than wide. Conductor over 5 times longer than wide, terminal 1/3 bent dorsally; embolus broad, with longitudinal ridges and claw like tip. Terminal and median apophyses without modifications.

Female. Total length 6.55. Carapace 3.0 long, 2.4 wide. Colouration: carapace light brown. Sternum, endites and chelicerae brown. Labium dark brown. Palps: Fe–Ti pale yellow, Ta brown. Legs: Fe–Pt yellow, Ti yellow-brown, Mt–Ta brown. Abdomen yellow-gray. Spinnerets pale yellow. Leg spination: I: Fe d2, p1, Ti v4, Mt v2; II: Fe d2, p2, Ti v3, Mt v2; III: Fe d2, p2, r2, Ti p3, r2, v4, Mt d1, p1, r1, v2; IV: Fe d2, p1, r1, Ti p3, r2, v5, Mt d2, p1, r1, v2. Leg measurements: I 8.70 (2.45, 1.40, 2.00, 1.60, 1.25); II 7.85 (2.10, 1.25, 1.80, 1.45, 1.25); III 7.45 (2.15, 1.15, 1.60, 1.45, 1.10); IV 10.30 (2.85, 1.35, 2.50, 2.25, 1.35).

Epigyne as in Figs 9a–c. Anterior and posterior pockets arch-shaped; posterior pocket almost not subdivided

into 2 parts; copulatory opening located in anterior 1/3 of fovea; receptacles and their ducts concave; receptacle as long as wide with long heads (*Rh*), heads 1.5 longer than wide, equal in width to receptacular ducts, heads separated by more than 2 diameters.

Size variation. Males vary from 8.0 to 9.7 in the body length, carapace 3.3–4.2 long, 2.5–3.2 wide (n=3).

***Parasyrisca szinetari* sp. n.**

Figs 2e–h, 4d–f, 5j, 6a–d, 9d–f, 10b, 11

Types. Holotype ♂ (ZMMU) MONGOLIA, ***Bayan-Ölgii Aimag***, Cengel-Khairkhan-Nuruu Mt. Range, Cengel-Khairkhan Mt. (48°38'36"N, 89°10'22"E), moraine, 3300–3400 m, 15.07.2017 (A.A. Fomichev). Paratypes: 2♀ (ZMMU) together with the holotype.

Etymology. The specific name is a patronym in honour of our colleague, Csaba Szinetár (Szombathely, Hungary), who recently described new species of *Parasyrisca* from Central Europe.

Diagnosis. Male of *P. szinetari* **sp. n.** differs from similar *P. polchaninovae* **sp. n.** by thicker conductor (cf. Figs 4e, 6a and 4b, 6e) and rectangular embolus composed of 2 parts (Figs 6b–d) vs. claw-like embolus (Figs 5h, 6g, h). Female of *P. szinetari* **sp. n.** differs from sibling *P. polchaninovae* **sp. n.** by having wide anchor like posterior pocket of epigyne (Figs. 9d–f) vs. thin arch shaped (Figs 9a–c) and having very broad receptacles (wider than receptacular ducts).

Description. Male (holotype). Total length 7.75. Carapace 3.1 long, 2.45 wide. Colouration: carapace brown. Sternum, labium, chelicerae and endites dark brown. Palps: Fe–Pt pale yellow, Ti and cymbium dark brown. Legs dirty yellow. Abdomen and spinnerets yellow-gray. Leg spination: I: Fe d2 p1, Ti v4, Mt v2; II: Fe d2 p2, Ti v3, Mt v2; III: Fe d2 p2 r2, Ti p3 r2 v6, Mt d2 p1 r1 v2; IV: Fe d2 p1 r1, Ti p3 r3 v6, Mt d2 p1 r1 v2. Leg measurements: I 11.60 (3.00, 1.65, 2.90, 2.40, 1.65); II 9.95 (2.75, 1.50, 2.40, 1.90, 1.40); III 8.90 (2.50, 1.35, 2.05, 1.75, 1.25); 11.95 (3.25, 1.50, 3.00, 2.70, 1.50).

Palp as in Figs 2e–h, 4d–f, 5j, 6a–d. Tibia with rectangular apophysis bearing teeth in posterior part. Cymbium broad, length less than 2 widths (Fig. 2f). Conductor broad, about 2.5 times longer than wide, terminal half bent dorsally; embolus complex composed of flat part (*Ef*) with longitudinal ridges and thin part (*Et*), 2 parts fused near visible base of embolus (arrowed on Fig. 6d). Terminal and median apophyses without modifications.

Female. Total length 9.25. Carapace 4.0 long, 3.3 wide. Colouration: carapace brown. Sternum, labium, chelicerae and endites dark brown. Palps: Fe–Pt pale yellow, Ti–Ta brown. Legs: Fe yellow, Pt–Ta yellow-brown. Abdomen yellow-gray. Spinnerets pale yellow. Leg spination: I: Fe d2 p1, Ti v4, Mt v2; II: Fe d2 p2, Ti v3, Mt v2; III: Fe d2 p2 r2, Ti p3 r2 v5, Mt d2 p1 r2 v2; IV: Fe d2 p1 r1, Ti p3 r3 v5, Mt d2 p1 r1 v2. Leg measurement: I 13.35 (3.75, 2.00, 3.25, 2.60, 1.75); II 12.40 (3.50, 1.90, 3.00, 2.35, 1.65); III 9.76 (3.25, 1.75, 2.60, 2.25, 1.65); IV 15.30 (4.25, 2.00, 3.75, 3.40, 1.90).

Epigyne as in Figs 9d–f. Anterior pocket arch shaped, thinner than posterior pocket over 2 times; posterior pocket subdivided in 2 parts; receptacles broad, almost as wide as anterior pocket, spaced by about 1.5 diameters, anterior parts of receptacles coincides with anterior part of anterior pocket; diameter of receptacular ducts half the diameter of the receptacles, ducts almost as long as receptacles.

Size variation. Females vary from 9.25 to 11.5 in the body length, carapace 4.0–4.5 long, 3.3–3.5 wide (n=2).

***Parasyrisca platnicki* sp. n.**

Figs 1d, 3a–d, 4g–i, 5i, 6i, 8a–c, 9g–j, 10c, 11

Types. Holotype ♂ (ZMMU) MONGOLIA, ***Govi-Altai Aimag***, Khasagtyn-Nuruu Mt. Range, near Khoit-Bogd-Uul Mt. (46°47'N, 95°50'E), mountain stony tundra with screes and rocks, 3400–3500 m, 8.07.2017 (A.A. Fomichev). Paratypes: 2♀ (ZMMU) together with the holotype.

Etymology. The specific name is a patronym in honour of our colleague, Norman Platnick (New York, USA), who has made an unprecedented contribution to Arachnology and has described the majority of *Parasyrisca* species.

Diagnosis. The new species clearly differ from congeners by the possession of a long filamentous embolus and

conductor longer than the terminal apophysis (vs. non-filamentous embolus, and conductor shorter than terminal apophysis) as well as the triangular peak of the subdivided anterior pocket of the epigyne having 2 separate pits (vs. peak absent in anterior pocket, and the pocket never subdivided in 2 parts and without pits.

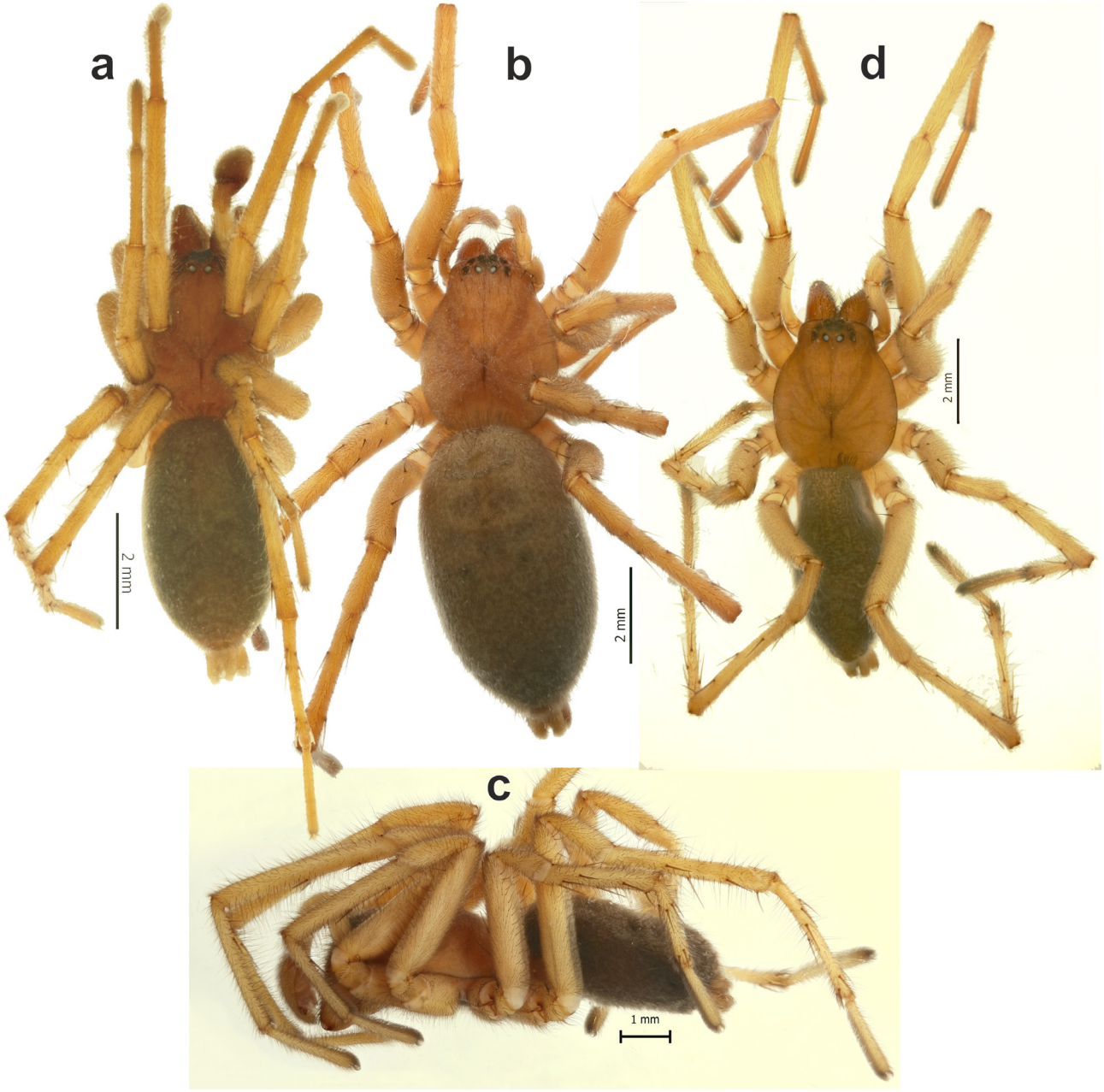

FIGURE 1. Habitus of *Parasyrisca khubsugul* (a–c) and *P. platnicki* **sp. n.** (holotype ♂, d). a, d male, dorsal; b female, dorsal; c male, lateral. Scale: a–b, d = 2 mm; c = 1 mm.

Description. Male (holotype). Total length 8.0. Carapace 3.7 long, 2.95 wide. Colouration: carapace and sternum yellow-brown. Chelicerae, labium and endites dark brown. Palps: Fe–Ti pale yellow. Cymbium yellow-brown. Legs and spinnerets pale yellow. Abdomen yellow-gray. Leg spination: I: Fe d2 p1, Ti v4, Mt v2; II: Fe d2 p2, Ti v2, Mt v2; III: Fe d2 p2 r1, Ti p2 r2 v4, Mt d1 p1 r1 v2; IV: Fe d2 r1, Ti p2 r2 v5, Mt d2 p1 r1 v2. Leg measurements: I 14.5 (3.8, 2.0, 3.75, 3.05, 1.9); II 12.3 (3.35, 1.4, 3.15, 2.6, 1.8); III 11.45 (3.1, 1.55, 2.6, 2.45, 1.75); IV 15.35 (4.25, 1.65, 3.9, 3.6, 1.95).

Palp as in Figs 3a–d, 4g–i, 5i, 6i, 8a–c. Tibia with gradually tapering apophysis lacking transversal ridges. Cymbium droplet shaped. Conductor long bent, slightly twisted around longitudinal axis, with a few small spines (*Cs*) in basal 1/3; embolus filamentous, embedded into conductor; terminal apophysis smaller than median apophysis, with sharply pointed tip.

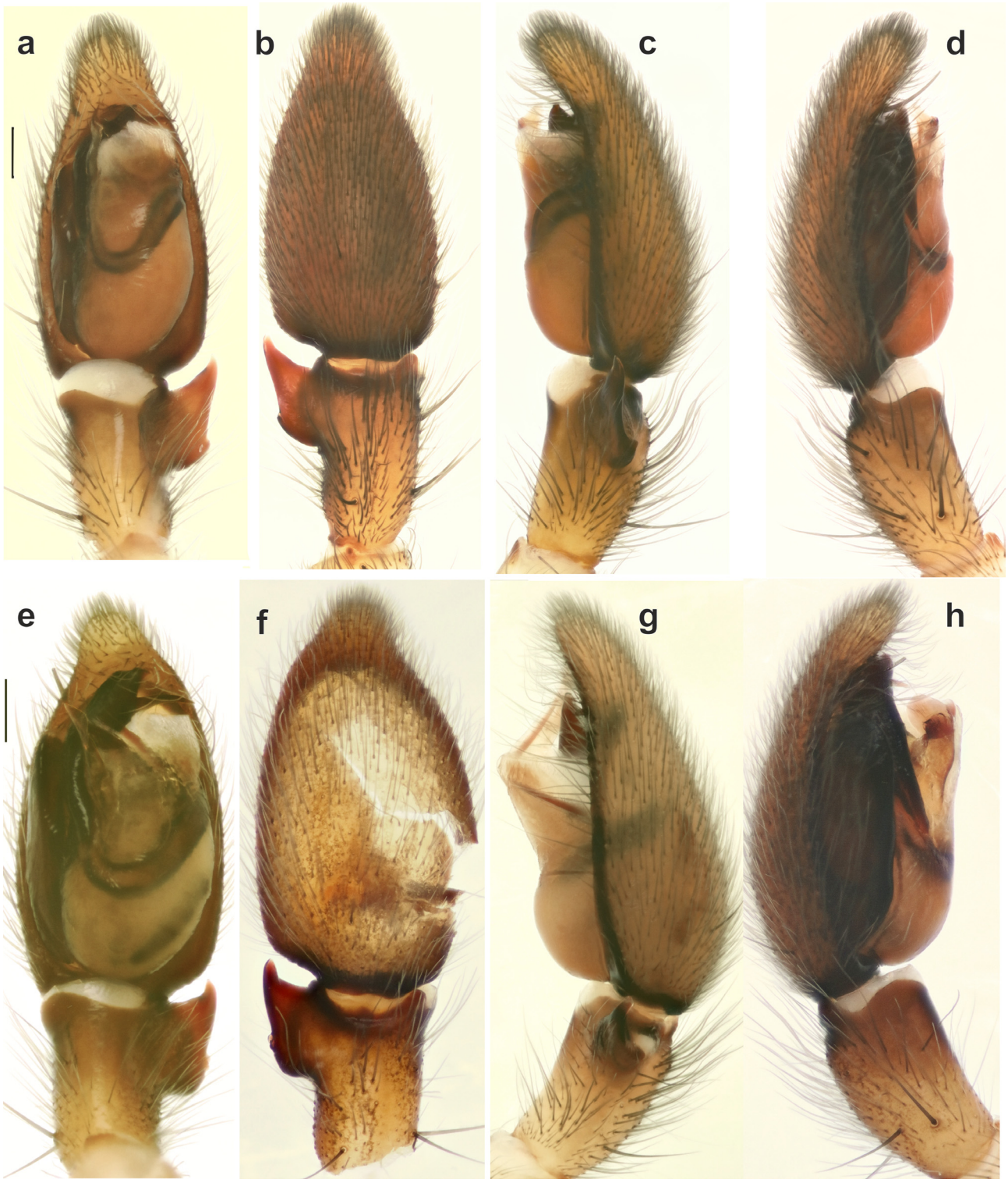

FIGURE 2. Palp of *Parasyrisca polchaninovae* **sp. n.** (a–d) and the holotype of *P. szinetari* **sp. n.** (e–h). a, e ventral; b, f dorsal; c, g retrolateral; d, h prolateral. Scale = 0.2 mm.

Female. Total length 11.7. Carapace 4.25 long, 3.6 wide. Chelicera with 3 promarginal and 2 retromarginal teeth. Colouration: carapace and sternum yellow-brown. Chelicerae, labium and endites dark-brown. Palps: Fe–Ti pale yellow, Ta dark brown. Legs pale yellow, with Mt–Ta of legs I, II brown. Abdomen yellow-gray. Spinnerets pale yellow. Leg spination: I: Fe d2 p1, Ti v3, Mt v2; II: Fe d2 p2, Ti v2, Mt v2; III: Fe d2 p2 r2, Ti p2 r2 v4, Mt d1 p1 r1 v2; IV: Fe d2 r1, Ti p2 r2 v6, Mt d2 p1 r1 v2. Leg measurements: I 14.0 (4.0, 2.1, 3.2, 2.7, 2.0); II 13.1 (3.7, 2.0, 3.0, 2.55, 1.85); III 12.3 (3.4, 1.85, 2.65, 2.5, 1.9); IV 16.2 (4.55, 2.1, 3.95, 3.5, 2.1).

FIGURE 3. Male palp of the holotype of *Parasyrisca platnicki* **sp. n.** (a–d) and *P. khubsugul* (e–g). a, e ventral; b, g dorsal; c, f retrolateral; d prolateral. Scale = 0.2 mm.

Epigyne as in Figs 9g–j. Anterior pocket triangle, strongly raised over epigynal plate (Fig. 9j), subdivided into 2 round pits (Fig. 9i); posterior pocket subdivided by septum in 2 parts; copulatory openings broad and rounded; anterior edge of receptacles lie over anterior edge of anterior pocket. Receptacles bent, directed postero-mesally, almost touching each other, anterior part of receptacle with hemispherical head (*Rh*) directed antero-mesally, heads about 3 times thinner than receptacle; receptacular ducts (*Rd*) converging in posterior direction, about 3 times thinner than receptacle.

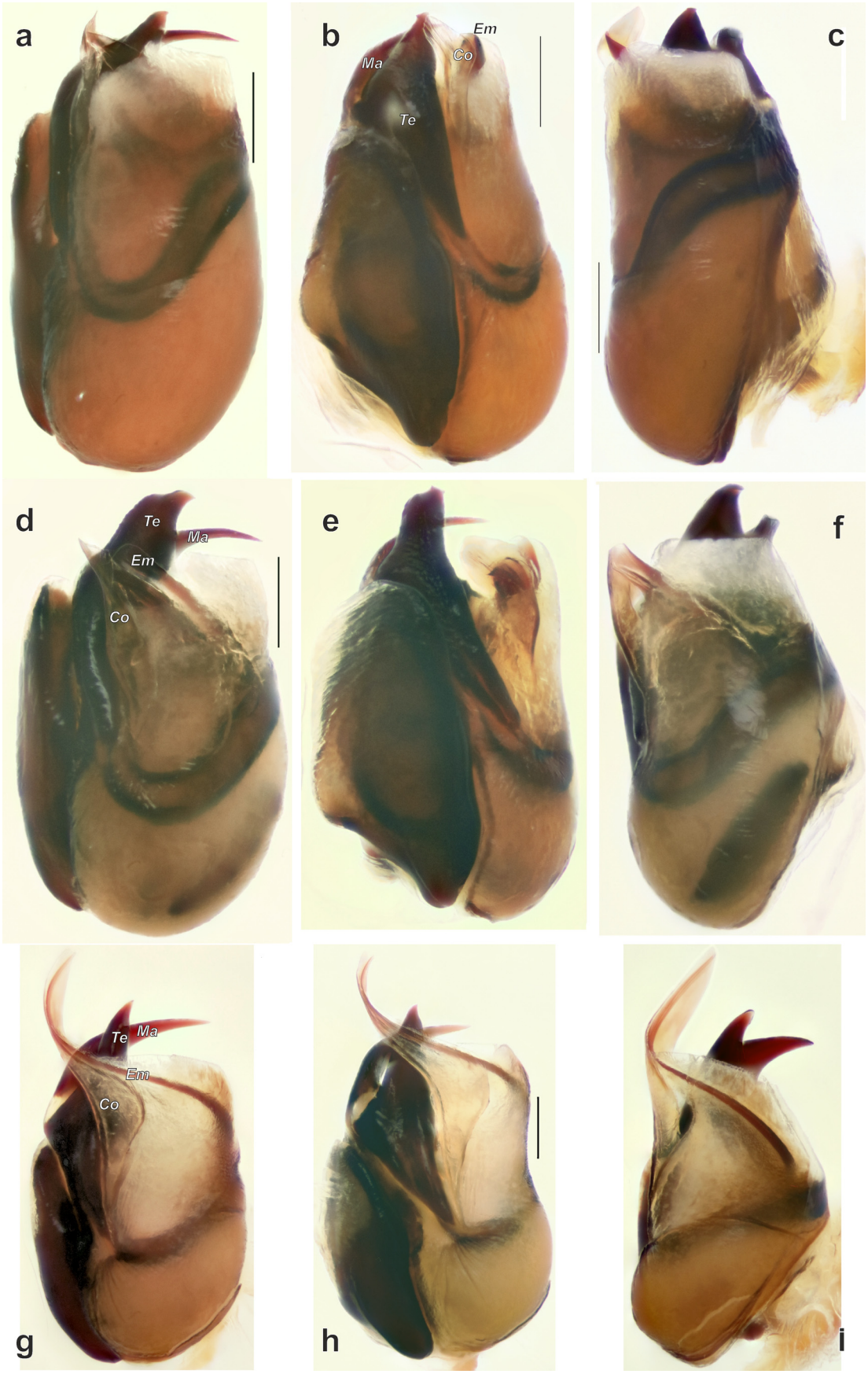

FIGURE 4. Bulb of *Parasyrisca polchaninovae* **sp. n.** (a–c), *P. szinetari* **sp. n.** (d–f) and *P. platnicki* **sp. n.** (g–i). a, d, g ventral; b, e, h prolateral; c, f, i retrolateral. Scale = 0.2 mm. Abbreviations: *Co* conductor, *Em* embolus, *Ma* median apophysis, *Te* terminal apophysis.

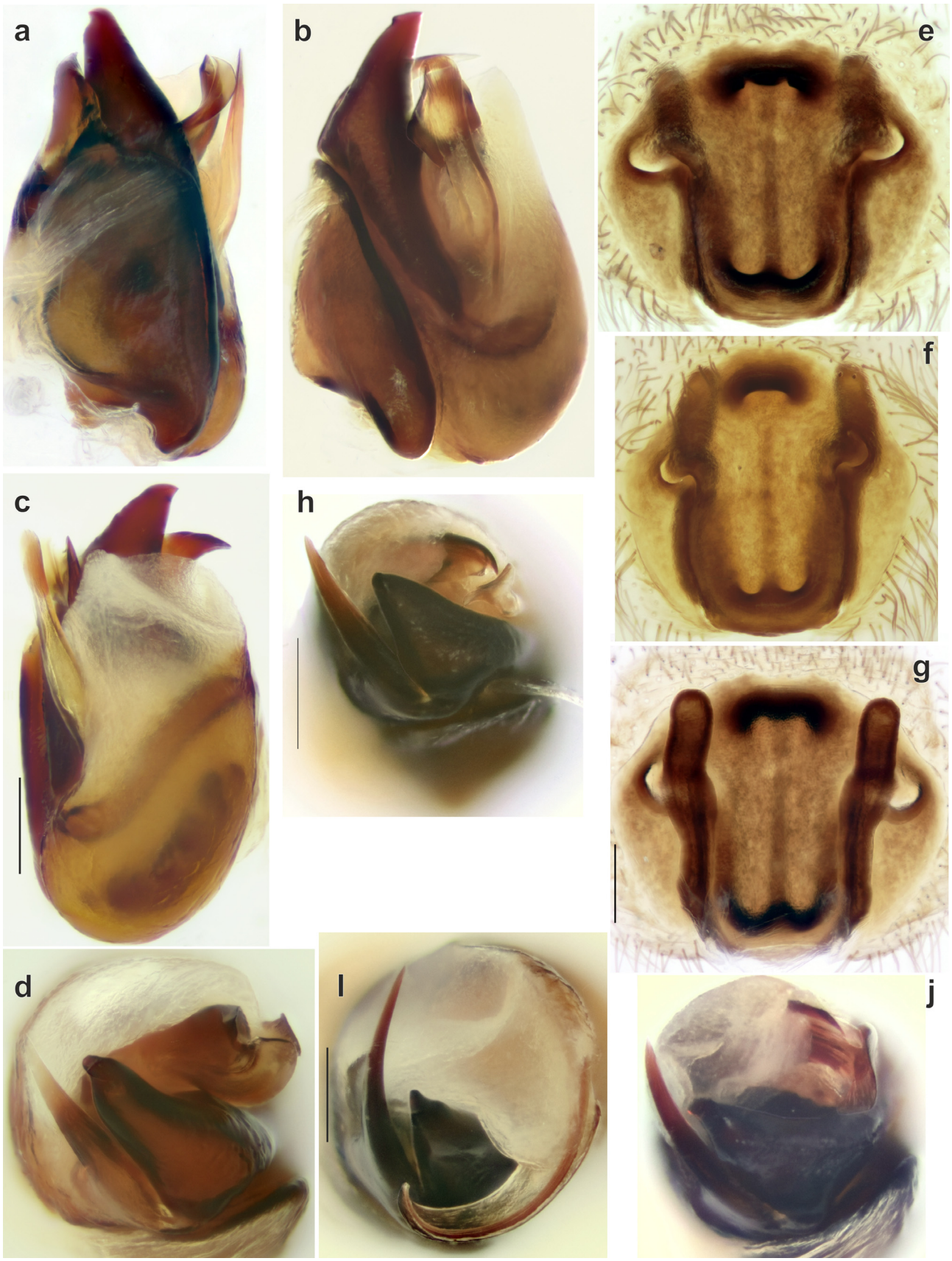

FIGURE 5. Bulb of *Parasyrisca khubsugul* (a–d), *P. polchaninovae* **sp. n.** (h), *P. platnicki* **sp. n.** (i) and *P. szinetari* **sp. n.** (j) and epigyne of *P. khubsugul* (e–g). a–c, dorso-prolateral, prolateral and ventral; d, h–j anterior; e–f variation in shape, ventral; g dorsal. Scale = 0.2 mm.

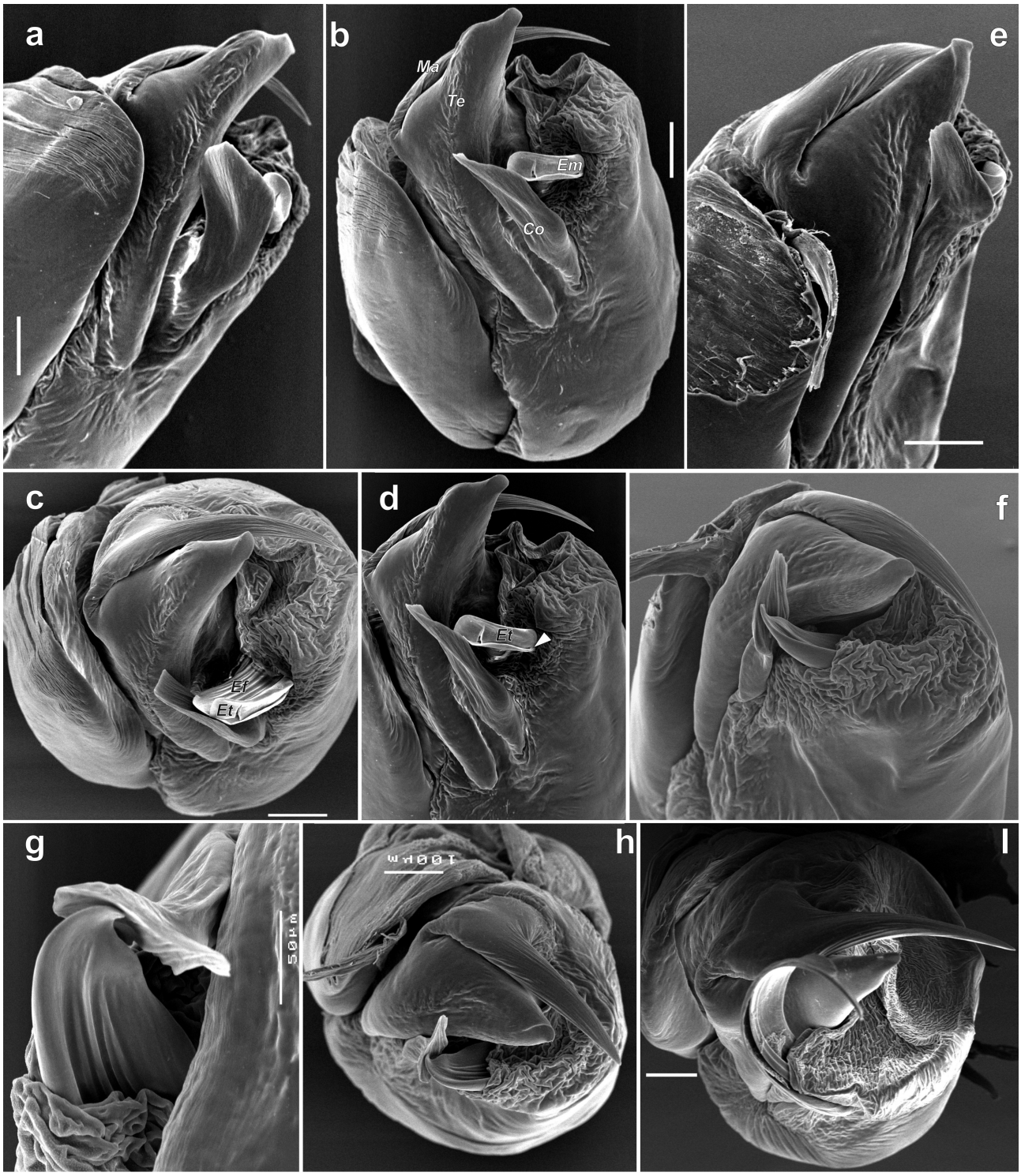

FIGURE 6. Bulb of *Parasyrisca szinetari* **sp. n.** (a–d) and *P. polchaninovae* **sp. n.** (e–h) and *P. platnicki* **sp. n.** (i). a, e prolateral; b, d, f antero-ventral; c, h–i anterior; g embolus and conductor anterior. Scale = 0.1 mm if not otherwise indicated. Abbreviations: *Ef* flat part of the embolus, *Em* embolus, *Et* thin part of the embolus, *Co* conductor, *Ma* median apophysis, *Te* terminal apophysis.

Size variation. Females vary from 10.0 to 11.7 in the body length, carapace 4.1–4.25 long, 3.25–3.6 wide (n=2).

Comments. Although this species has unique features like filamentous embolus, long conductor, anterior pocket subdivided in two parts and anteriorly bent receptacles, we place *P. platnicki* **sp. n.** in the *P. potanini*-group.

***Parasyrisca khubsugul* Ovtsharenko, Platnick & Marusik, 1995**
Figs 1a–c, 3e–g, 5a–g, 7a–i, 10d–e, 11

Parasyrisca khubsugul Ovtsharenko *et al.*, 1995: 22, f. 72-74 (♂).

Material examined: MONGOLIA: 1♂ 88♀ ***Bayankhongor Aimag***, Gurvanbulag Somon, Khokh-Nuur Lake, 47°32'N 98°32'E, 2600 m, 7–10.06.1997 (Y.M. Marusik). 19♂ 9♀ ***Arkhangai Aimag***, Ondrer-Ulaan, Tsakhir, Chulut Gorge, 48°07'N 100°22'E, 2100 m, 10–13.06.1997 (Y.M. Marusik).

Male. Described by Ovtsharenko *et al.* (1995).

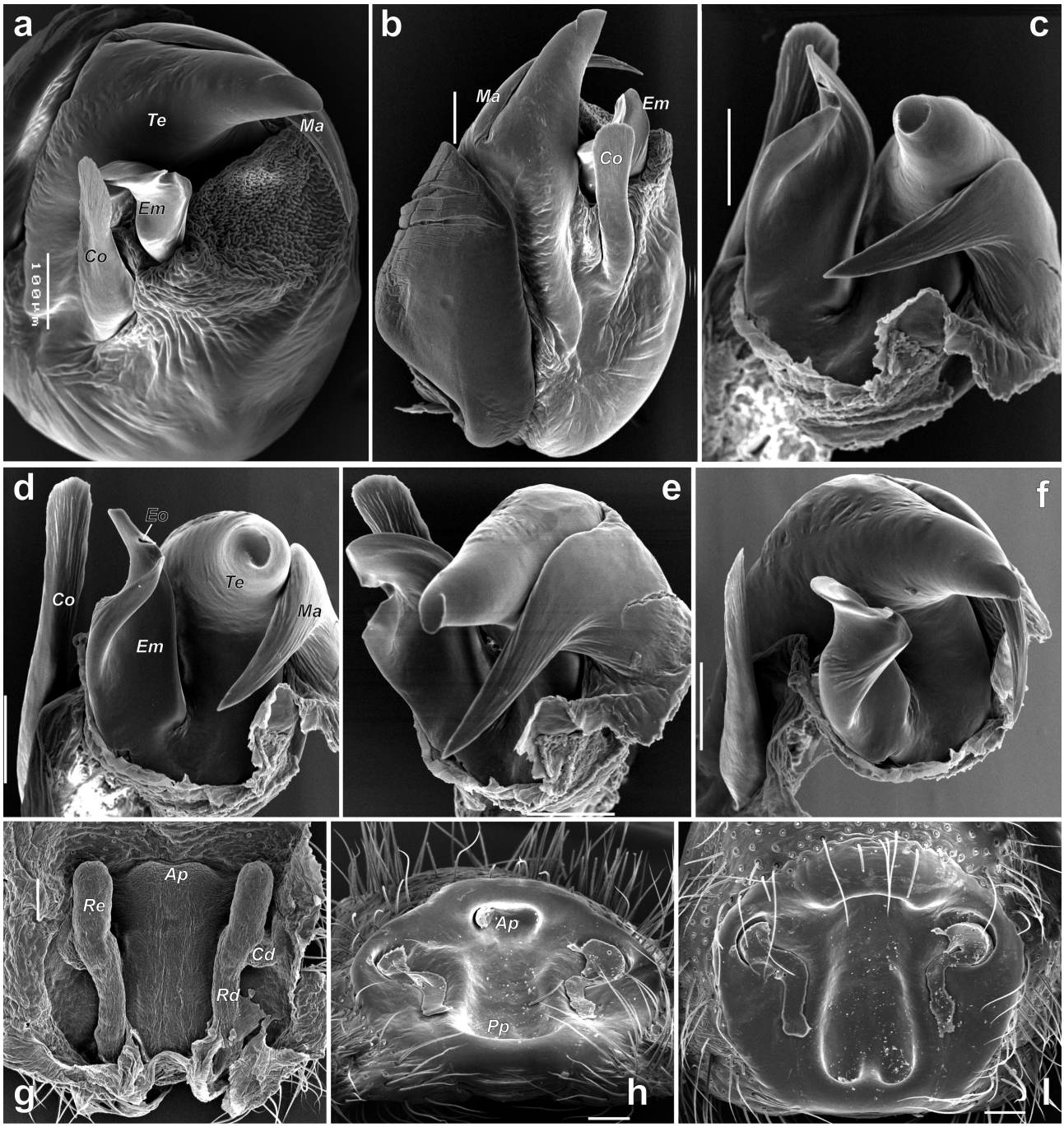

FIGURE 7. Male palp and epigyne of *Parasyrisca khubsugul*. a–b bulb, anterior and prolateral; c–d embolic division, antero-retrolateral and antero-ventral; e–f embolic division, retrolateral and anterior; g–i epigyne, dorsal; caudal and ventral. Scale = 0.1 mm. Abbreviations: *Ap* anterior pocket, *Em* embolus, *Eo* embolic opening, *Cd* copulatory duct, *Co* conductor, *Ma* median apophysis, *Pp* posterior pocket, *Re* receptacle, *Rd* receptacular duct, *Te* terminal apophysis.

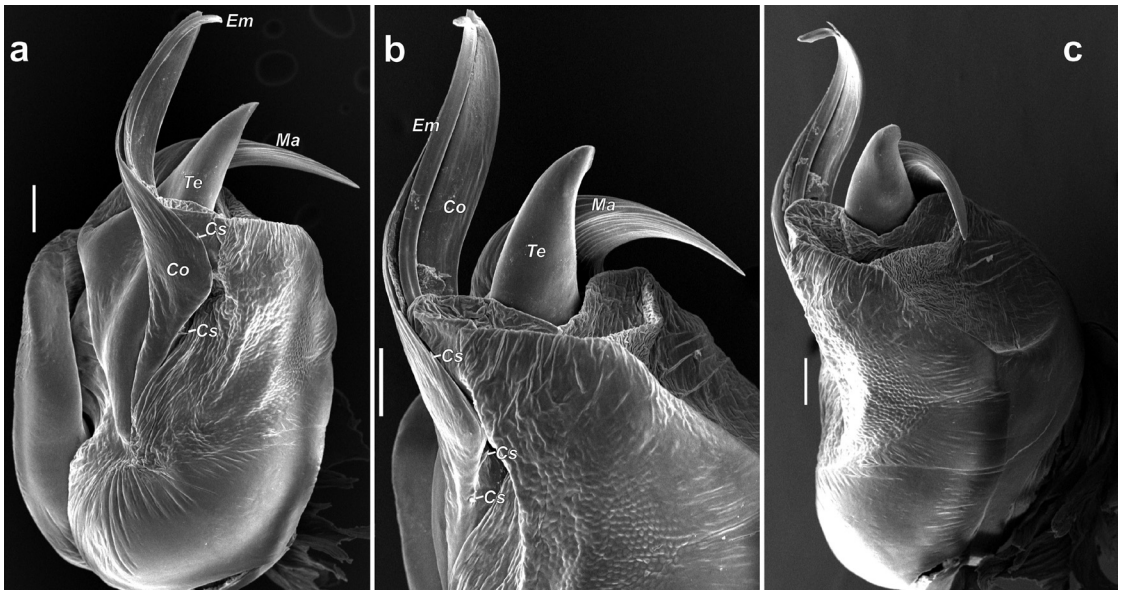

FIGURE 8. Bulb of the holotype of *Parasyrisca platnicki* **sp. n.** a ventro-prolateral; b retrolateral; c antero-retrolateral. Scale = 0.1 mm. Abbreviations: *Co* conductor, *Cs* conductor spine, *Em* embolus, *Ma* median apophysis, *Te* terminal apophysis.

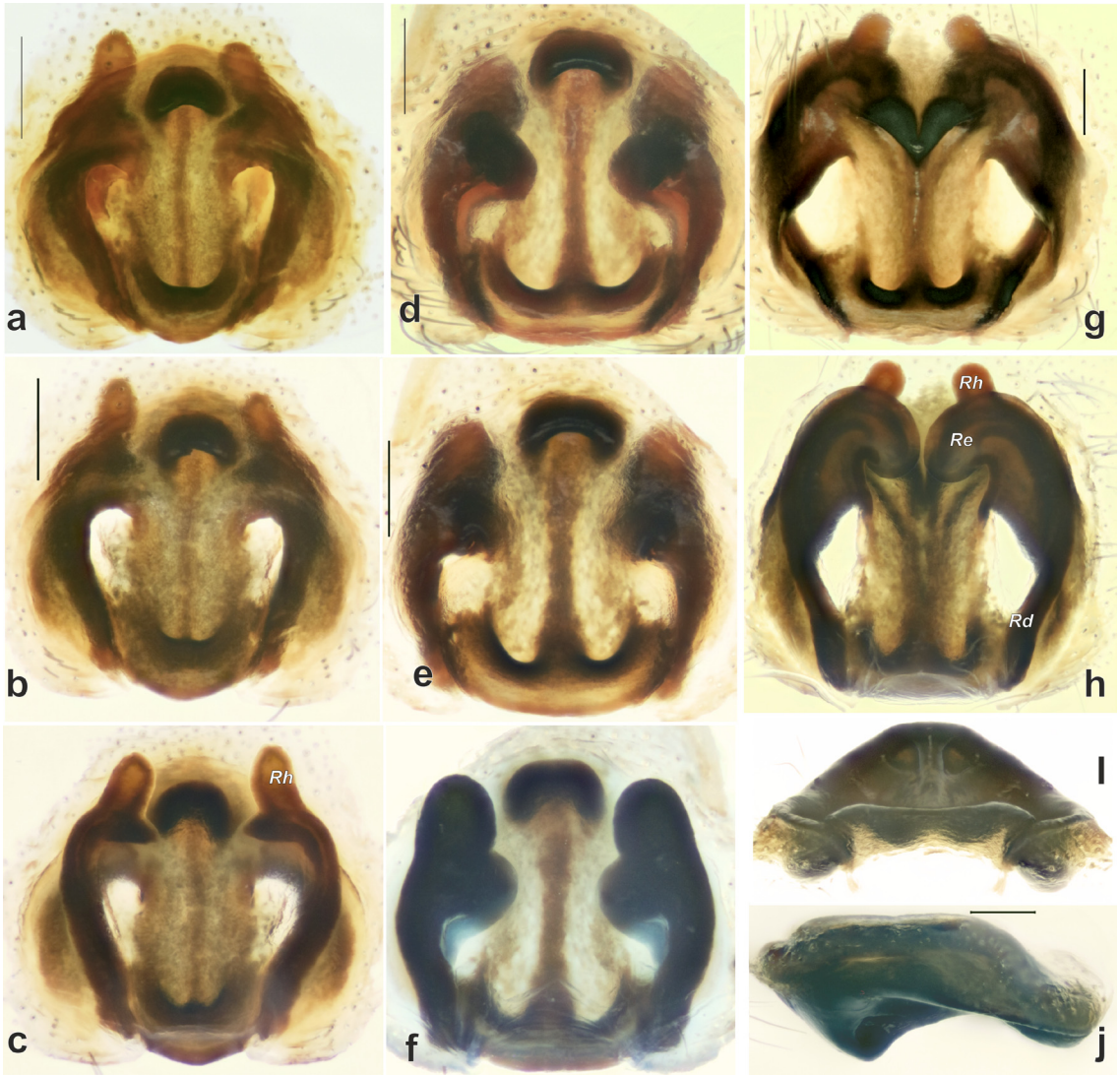

FIGURE 9. Epigynes of *Parasyrisca polchaninovae* **sp. n.** (a–c), *P. szinetari* **sp. n.** (d–f) and *P. platnicki* **sp. n.** (g–j). a, d, g intact, ventral; b, e, macerated, ventral; c, f, h macerated, dorsal; i caudal; j lateral. Scale = 0.2 mm. Abbreviations: *Rd* receptacular duct, *Re* receptacle, *Rh* receptacular heads.

Palp as in Figs 3e–g, 5a–d, 7a–f. Tibia with rectangular apophysis, slightly bent dorsally in posterior part; posterior part with transverse ridges. Cymbium with subparallel lateral sides. Tegulum with slanting sperm duct forming about 45° angle; conductor long and straight, with parallel lateral margins and rounded tip; embolus complex in shape, wider than conductor (Figs 5d, 7a–f), lamellated, without longitudinal ridges, lateral sides heavily sclerotized, mesal part membranous, posterior margin twisted around the axis (Fig. 7d); terminal apophysis massive; median apophysis as long as terminal.

Female.Total length 11.5. Carapace 4.25 long, 3.5 wide. Leg spination: I: Fe d2, p1, Ti v4, Mt v2; II: Fe d2, p2, Ti v3, Mt v2; III: Fe d2, p2, r1, Ti p4, r4, v2; IV: Fe d2, r1, Ti p3, r3, v3, Mt p4, r4, v2. Leg measurements: I 12.65 (3.5, 1.9, 3.1, 2.4, 1.75); II 11.7 (3.3, 1.75, 2.75, 2.15, 1.75), III 10.65 (3.25, 1.65, 2.5, 1.6, 1.65), IV 14.35 (4.0, 1.8, 3.6, 3.1, 1.85).

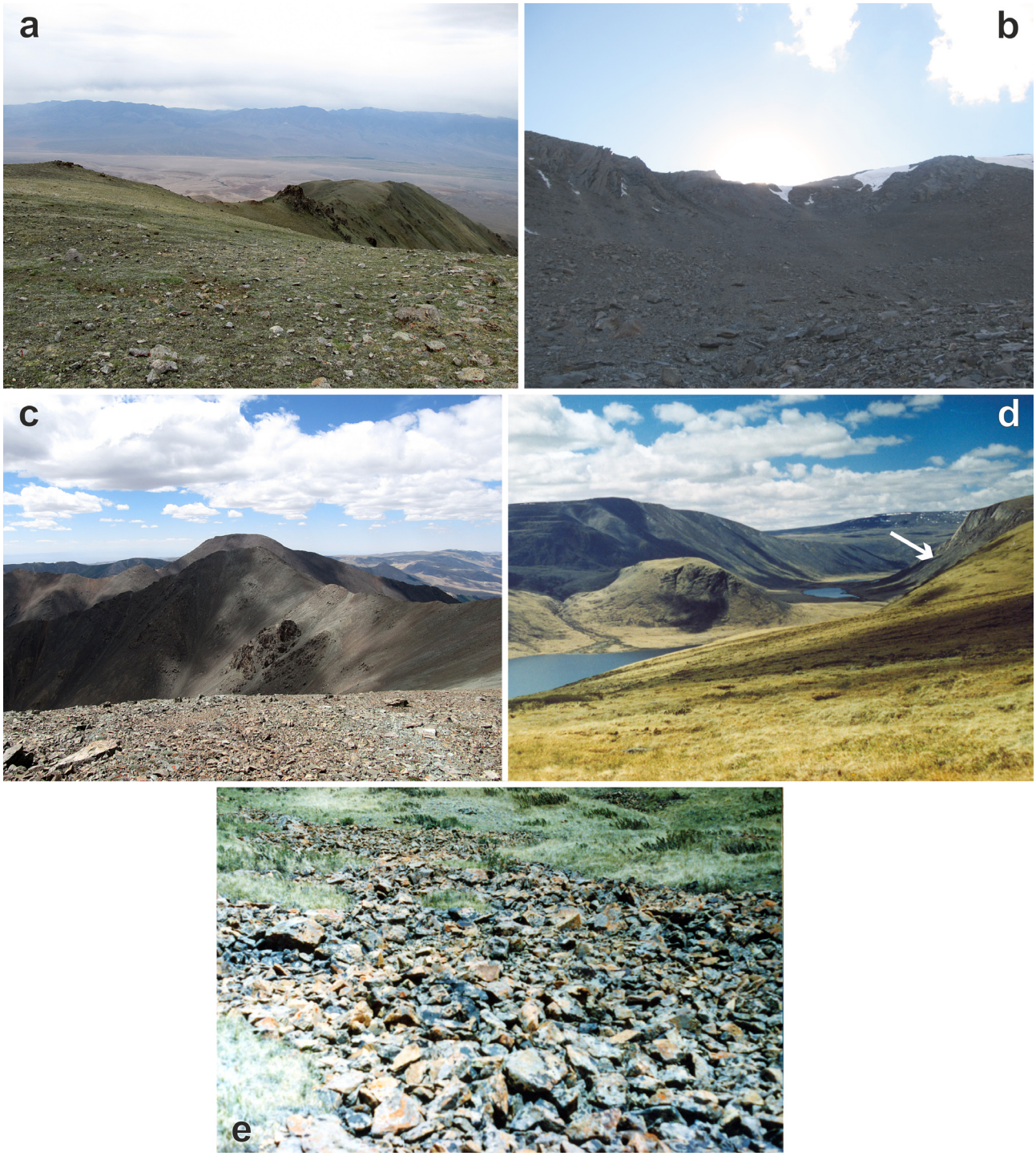

FIGURE 10. Type localities of *Parasyrisca polchaninovae* **sp. n.** (a), *P. szinetari* **sp. n.** (b), *P. platnicki* **sp. n.** (c) and collecting locality of *P. khubsugul* (d–e).

Epigyne as in Figs 5e–g, 7g–i. Fovea almost rectangular, about 2 times longer than wide; anterior pocket wide, partly subdivided in 2 parts (Fig 5e, g) or arch shaped (Figs 5f, 7i); septum thin weakly developed; posterior pocket subdivided in 2 parts; copulatory opening rounded; receptacles and receptacular ducts straight, parallel to each other; receptacles slightly wider ducts and 1.5 shorter; receptacles separated by 3–4 diameters.

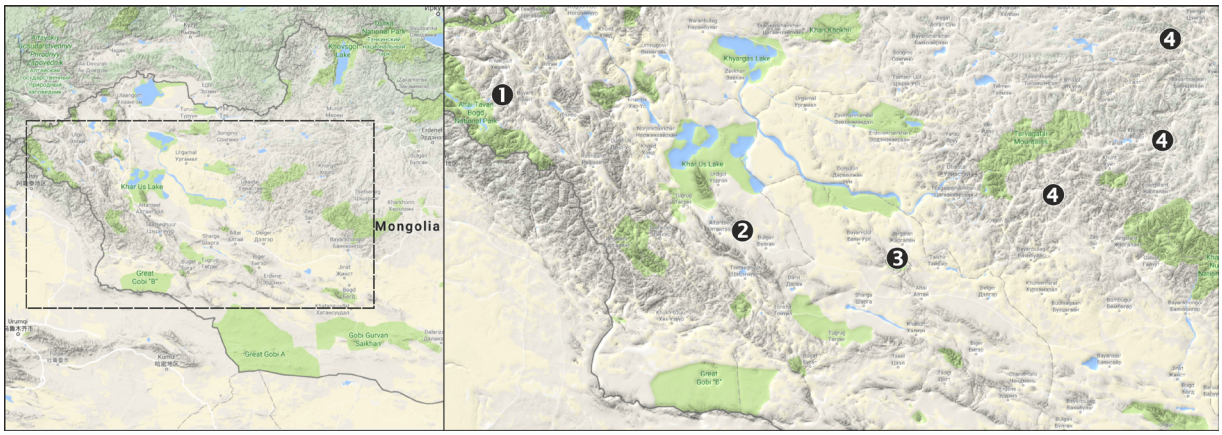

FIGURE 11. Type and collecting localities of *Parasyrisca szinetari* **sp. n.** (1), *P. polchaninovae* **sp. n.** (2), *P. platnicki* **sp. n.** (3) and *P. khubsugul* (4, the northernmost dot refers to the type locality).

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