Zootaxa 3925 (1): 129–144
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3925.1.9
http://zoobank.org/urn:lsid:zoobank.org:pub:52C2B852-7814-4313-B18A-717241C81E4F

A survey of Palaearctic Dictynidae (Araneae). 1. Taxonomic notes on *Dictynomorpha* Spassky, 1939, *Brigittea* Lehtinen, 1967 and *Lathys* Simon, 1884

YURI M. MARUSIK[1,2,5], SERGEI L. ESYUNIN[3] & TATYANA K. TUNEVA[4]

[1]*Institute for Biological Problems of the North RAS, Portovaya Str. 18, Magadan, Russia. E-mail: yurmar@mail.ru*
[2]*Far Eastern Federal University, Sukhanova 8, Vladivostok RF-690950, Russia.*
[3]*Perm State University, Bukireva Str. 15, Perm, Russia. E-mail: Sergei.Esyunin@psu.ru*
[4]*Institute of Plants and Animals Ecology Ural branch RAS, 8 March Str. 202, Ekaterinburg, Russia, 620144. E-mail: tuneva@ipae.uran.ru*
[5]*Corresponding author*

Abstract

A new species, *Dictynomorpha daemonis* **sp. n**. (♂) is described from South Kazakhstan and a new diagnosis is suggested for *Dictynomorpha* Spassky, 1939. The genus is redelimited and its type species *D. strandi* Spassky, 1939 redescribed. Three *Dictynomorpha* species are transferred to *Ajmonia* Caporiacco, 1934 and three new combinations are suggested: *Ajmonia smaragdula* (Simon, 1905) **comb. n**., *Ajmonia bedeshai* (Tikader, 1966) **comb. n**. and *Ajmonia marakata* (Sherriffs, 1927) **comb. n**. *Brigittea* Lehtinen, 1967 is removed from the synonymy with *Dictyna* Sundevall, 1833 and its composition is discussed. The type species of *Brigittea*, *B. latens* (Fabricius, 1775) is synonymized with *B. latens mutabilis* Spassky & Shnitnikov, 1937. *Lathys spasskyi* Andreeva & Tyshchenko, 1969 is removed from the synonymy with *L. stigmatisata* (Menge, 1869). New illustrations and distribution data are provided for *Lathys truncata* Danilov, 1994. *Lathys mussooriensis* Biswas & Roy, 2008 is transferred from Dictynidae to Amaurobiidae and tentatively placed in *Himalmartensus* Wang & Zhu, 2008, the new combination is suggested: *Himalmartensus mussooriensis* (Biswas & Roy, 2008) **comb. n.**

Key words: Dictyninae, Tricholathysinae, spider, copulatory organs, palp, epigyne, cribellum

Introduction

The Dictynidae are a relatively small, globally distributed family with 578 extant species currently placed in 51 genera (Platnick 2014).The family is rather poorly studied as almost half of its species are known from one sex (196 by ♀, 48 by ♂). Of the 51 genera, 17 are monotypic including four which are known only from female specimens and four only by males. The monotypic genus *Hoplolathys* Caporiacco, 1947 is known by the description of one juvenile specimen. The family or its genera have not been the subject of any global or regional revisions in the last 50 years. Dictynidae are represented by 73 species in the territories of the former USSR (Mikhailov 2013) and 80 species in Europe (Helsdingen 2014). While studying material recently collected in south-eastern Kazakhstan, we recognized one species new to science. Additional examination of the older material collected in south-eastern and eastern parts of Kazakhstan revealed that several species and one genus require taxonomical changes (i.e. synonymy or revalidation). The main goals of this paper are: 1) to describe the new species found from Kazakhstan, 2) to redefine *Dictynomorpha* Spassky, 1939, 3) to revalidate *Brigittea* Lehtinen, 1967, and 4) to provide nomenclatural changes on dictynid species occurring within the Kazakhstan.

Material and methods

The motivation for this paper came from material collected during three expeditions to Kazakhstan. The first expedition took place in 1936 and was organized by late D.E. Charitonov. It focused on the fauna of the East-

Accepted by P. Jaeger: 28 Jan. 2015; published: 26 Feb. 2015

Kazakhstan Area around Zaisan Lake. The second expedition was in 2001 and was organized by S.I. Golovatch and explored mountain regions of the Alamay Area in 2001. The third expedition took place in 2010 and was in the South-Kazakhstan Area along an ecological transect from the desert regions (Kyzylkum or Qyzylqum Desert) to the mountains (Karatau Mt. Range).

SEM micrographs were made using a Hitachi TM3000 SEM microscope with BSE (back-scattered electrons) at the State Perm University. Digital photographs were taken in dishes of different sizes with paraffin covered bottom. Specimens were photographed using an Olympus Camedia E-520 camera attached to an Olympus SZX16 stereomicroscope at the Zoological Museum, University of Turku. Digital images were prepared using "CombineZP" image stacking software. Illustrations of epigynes were made after maceration in 20% potassium hydroxide aqueous solution. All measurements are given in millimeters. Leg measurements are given as: total (femur+patella-tibia+metatarsus+tarsus).

Collections: IBPN—Institute for Biological Problems of the North, ISEA—Institute for Systematics and Ecology of Animals in Novosibirsk, MMUM—Manchester Museum of the Manchester University, PSU—Department of Invertebrate Zoology and Aquatic Ecology of the Perm State University, ZMMU—Zoological Museum of the Moscow State University (type depository).

The following abbreviations have been used for spination: d—dorsal, p—prolateral, r—retrolateral, v—ventral. Eyes are abbreviated using standard terminology.

Taxonomy

Dictynomorpha Spassky, 1939

Dictynomorpha Spassky 1939: 138.
Dictynomorpha: Lehtinen 1967: 230, 360.

Type species: *D. strandi* Spassky, 1939 from Kyrgyzstan, by monotypy.

Comments. The genus was originally described for one species from Kyrgyzstan, *Dictynomorpha strandi* Spassky, 1939. Lehtinen (1967) transferred three additional species to *Dictynomorpha*, without studying the type material of *D. strandi* and types or comparative specimens of other species placed in the genus. Currently, four species are assigned to this genus: *D. bedeshai* (Tikader, 1966), *D. marakata* (Sherriffs, 1927) (both from India), *D. smaragdula* (Simon, 1905) (Sri Lanka) and *D. strandi* (Central Asia). The diagnosis of the genus is based mainly on the male palp which has a strongly modified patella and cymbium. Hence, it is unclear why Lehtinen transferred *D. bedeshai*, a species known only from females into *Dictynomorpha*. Additionally, the male palp of *D. smaragdula* differs significantly from the palp of the generotype by having a small ventral process of the patella (*D. strandi* has a large dorsal process) and lacks a protruding extension of the cymbium, which is strongly protruding in *D. strandi*. It appears likely that all species from India and Sri Lanka are misplaced in the genus.

Relationships. Judging from the habitus and male palp, the genus is related to *Ajmonia* Caporiacco, 1934, a taxon known from the South Palaearctic. *Dictynomorpha* is also somewhat similar to the Oriental *Anaxibia pictithorax* (Kulczyński, 1908) and Neotropical *Thallumetus* Simon, 1893 because all three of these taxa have modified patella, tibia and cymbia. The male of the type species of *Anaxibia* Thorell, 1898 is unknown. These four genera have not been revised and can not be compared in any detail with *Dictynomorpha*. Copulatory organs are relatively well studied only in Oriental *Ajmonia* (Marusik & Esyunin 2010).

Diagnosis. *Dictynomorpha* can be distinguished by the modified patella, tibia and cymbium of the male palp. *Dictynomorpha* differs from the related *Ajmonia* by having the male palpal femur modified with a small knob (unmodified in *Ajmonia*), and a strongly developed processes on the patella and cymbium (*vs*. one process on patella and usually one considerably smaller process/extension of cymbium in *Ajmonia*).

Composition. Two species can be considered in the genus: *D. strandi* and *D. daemonis* sp. n. Here, we transfer *D. smaragdula* (cf. Figs 14–15) to *Ajmonia* [*Ajmonia smaragdula* (Simon, 1905) **comb. n**.], based on the modified cymbium and tibia. We also transfer two other species, *Dictynomorpha bedeshai* (Tikader, 1966) and *D. marakata* (Sherriffs, 1927), to *Ajmonia.* However, this is a tentative placement because the former species is known only from a female, and the latter has no proper figures but they do not belong in the genus *Dicytnomorpha* [*Ajmonia bedeshai* (Tikader, 1966) **comb. n**. and *Ajmonia marakata* (Sherriffs, 1927) **comb. n**.].

***Dictynomorpha strandi* Spassky, 1939**
Figs 1–13

Dictynomorpha strandi Spassky 1939: 138, figs 1–3 (♂♀, in part).

Material examined: **KYRGYZSTAN**: 1♂ 1♀ (IBPN), Bishkek, Summer 1992, S.V. Ovtchinnikov leg.

Diagnosis. The species can be identified from *D. daemonis* sp. n. by the weakly, not strongly, bent tip of the embolus and by the absence of a cymbial spur.

Description. Well described by Spassky (1939), here we provide details only of the copulatory organs.

Male palp (Figs 6–7, 10–13): femur short, almost half length of cymbium, and with small ventral knob (*Fk*). Patella long, almost as long as femur, with massive dorsal process (*Pp*) with two lobes, retrolateral (*Rl*) and dorsal (*Dl*). Tibia short, cylindrical, with two apophyses: a larger retrolateral (*Ra*) and smaller prolateral (*Pa*). Cymbium strongly modified, with large dorso-posterior extension (*De*) and a retrolateral process (*Rp*), two times longer than wide; dorsal process with small prolateral outgrowth (*Po*) and distal large cavity (*Cc*). Bulbus oval, higher than wide; tegulum (*Te*) large and extends beyond embolus anteriorly; conductor very short, with almost undeveloped upper arm (*Ua*); lower arm (*La*) -simple, with one turn; embolus thick with two small bends in mid section and terminal bend, embolic base large.

Epigyne (Figs 2, 8–9): receptacles (*Re*) translucent in ventral view, copulatory openings (*Co*) small, widely spaced. Structure of endogyne vague, without well sclerotized receptacles; the only distinct structures are: the insemination ducts (*Id*) and an unpaired central plate (*Cp*) of vague function.

Distribution. The species is known from Central Asia: Turkmenistan, Uzbekistan and Kyrgyzstan. A record of this species from Kazakhstan (Spassky 1939) refers most likely to *D. daemonis* sp. n.

***Dictynomorpha daemonis* sp. n.**
Figs 16–23

Dictynomorpha strandi Spassky 1939: 138 (in part).

Type. Holotype ♂ (ZMMU), **KAZAKHSTAN, *South Kazakhstan Area***: ~7 km NE Terekty Village, Boralday-Tau Range, N 42°51.751', E 69°50.887', 650 m, 11–13.05.2010, T. Tuneva leg.

Etymology. The species name is derived from "daemon" a Latinized Greek word "δαίμων" meaning mythological creatures of mixed nature that can do good or evil; noun in genitive case.

Diagnosis. The species is most similar to *D. strandi* from which it can be separated by the strongly bent tip of embolus and the presence of a cymbial spur. The two species differ also in the shape of cymbium, the lower arm of the conductor, the tibial apophyses and patellar processes.

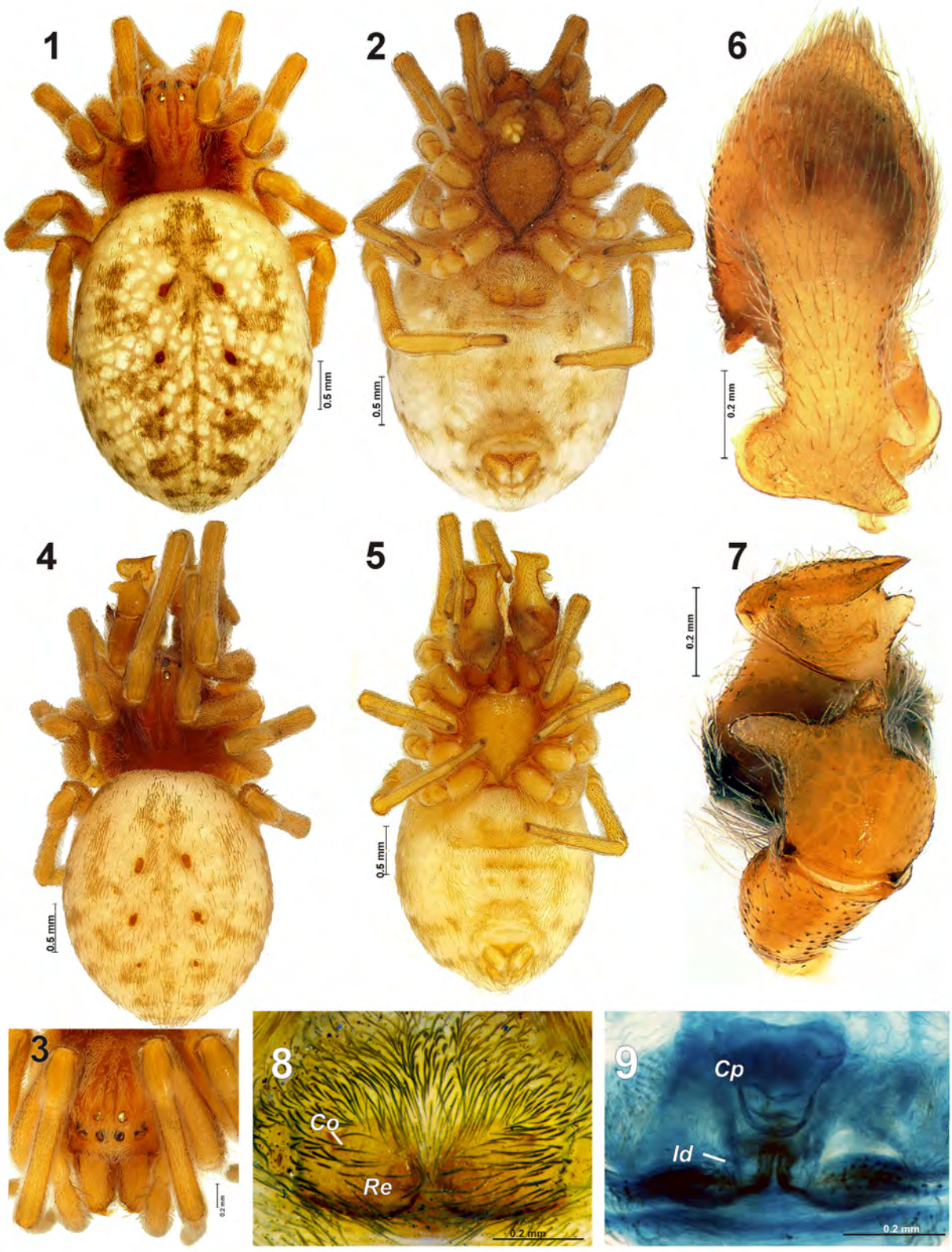
Description. Male. Total length 3.2. Carapace 1.4 long, 1.2 wide; brown, lighter median area. Sternum yellow with brown margin, covered with white setae. Chelicerae brown, with 3 prolateral teeth and 1 retrolateral tooth. Mouth parts (Fig. 21): labium about 1.6 times longer than wide; endites as wide as labium, two times longer than labium width, converging. Legs uniform yellow. Leg formula 1243. Femora and tibiae without spines; metatarsi II–IV with 3 ventro-distal spines. Abdomen light grey with white spots and pattern composed of grey setae; dorsum with 3 pairs of sigilla (Fig. 20).

Leg measurements: I 4.33 (1.30+1.55+0.95+0.53), II 3.73 (1.13+1.28+0.83+0.50), III 3.08 (0.90+1.13+0.68+0.38), IV 3.58 (1.08+1.30+0.88+0.33).

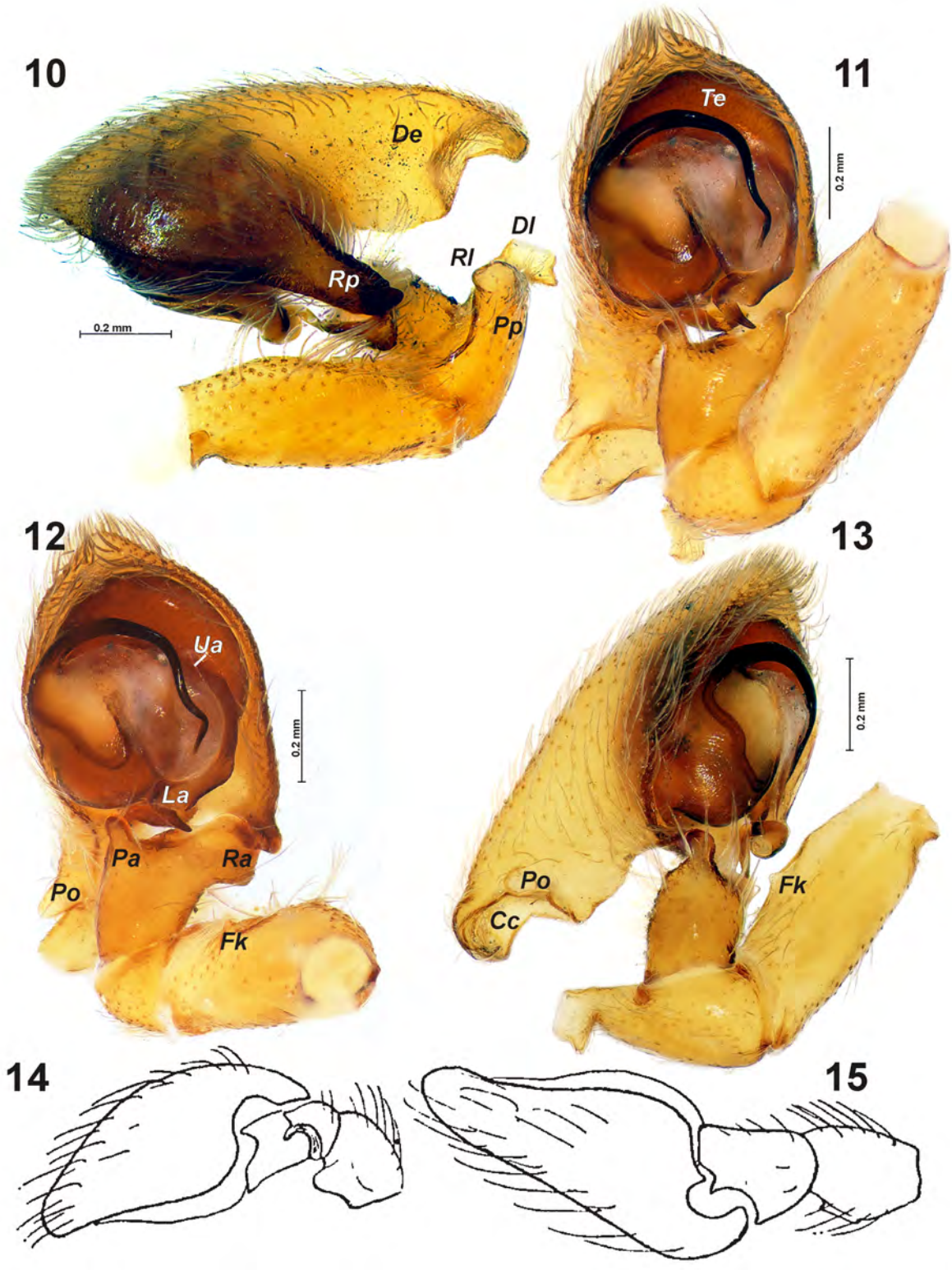
Palp as in Figs 16–19, 22–23. Femur modified, with small prolateral knob on anterior third and impression of knob on patella. Patella modified with two processes: retrolateral (*Pr*) and a dorsal (*Pp*). Tibia cylindrical, with two apophyses, prolateral (*Pa*) and retrolateral (*Ra*). Cymbium with massive extension and retrolateral process (*Rp*) and long cymbial spur (*Cs*) subdivided on top (Fig. 19). Bulbus round (as high as wide); conductor with strongly reduced upper arm (*Ua*) and simple lower arm (*La*); embolus relatively short, smoothly arching, with strongly bent tip.

Female unknown.

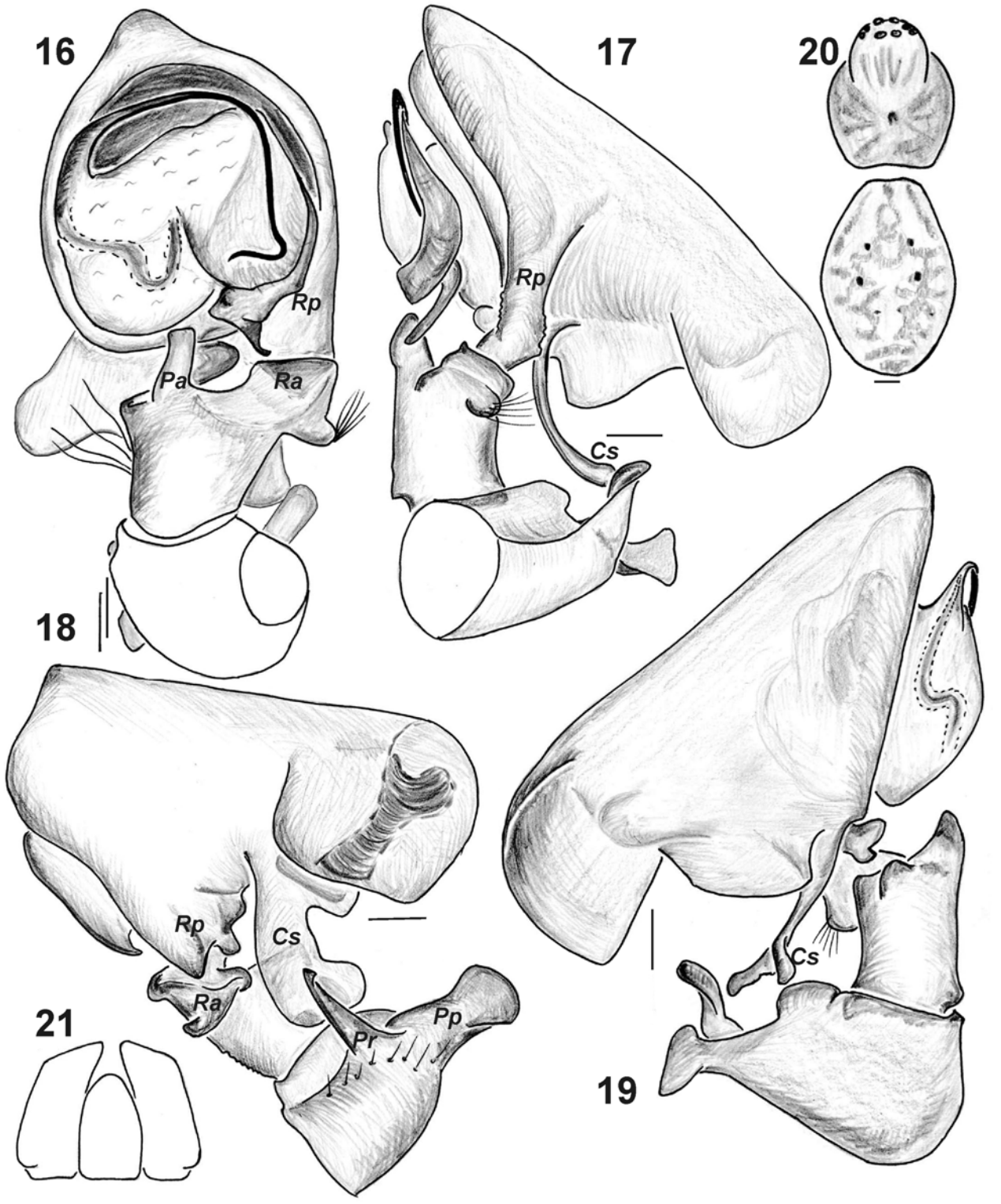
Distribution. So far, the species is known only from the holotype male. It is very likely that the record of *D. strandi* from the environs of Almaty (Spassky 1939), the same locality as *D. daemonis* sp. n., refer to this species.



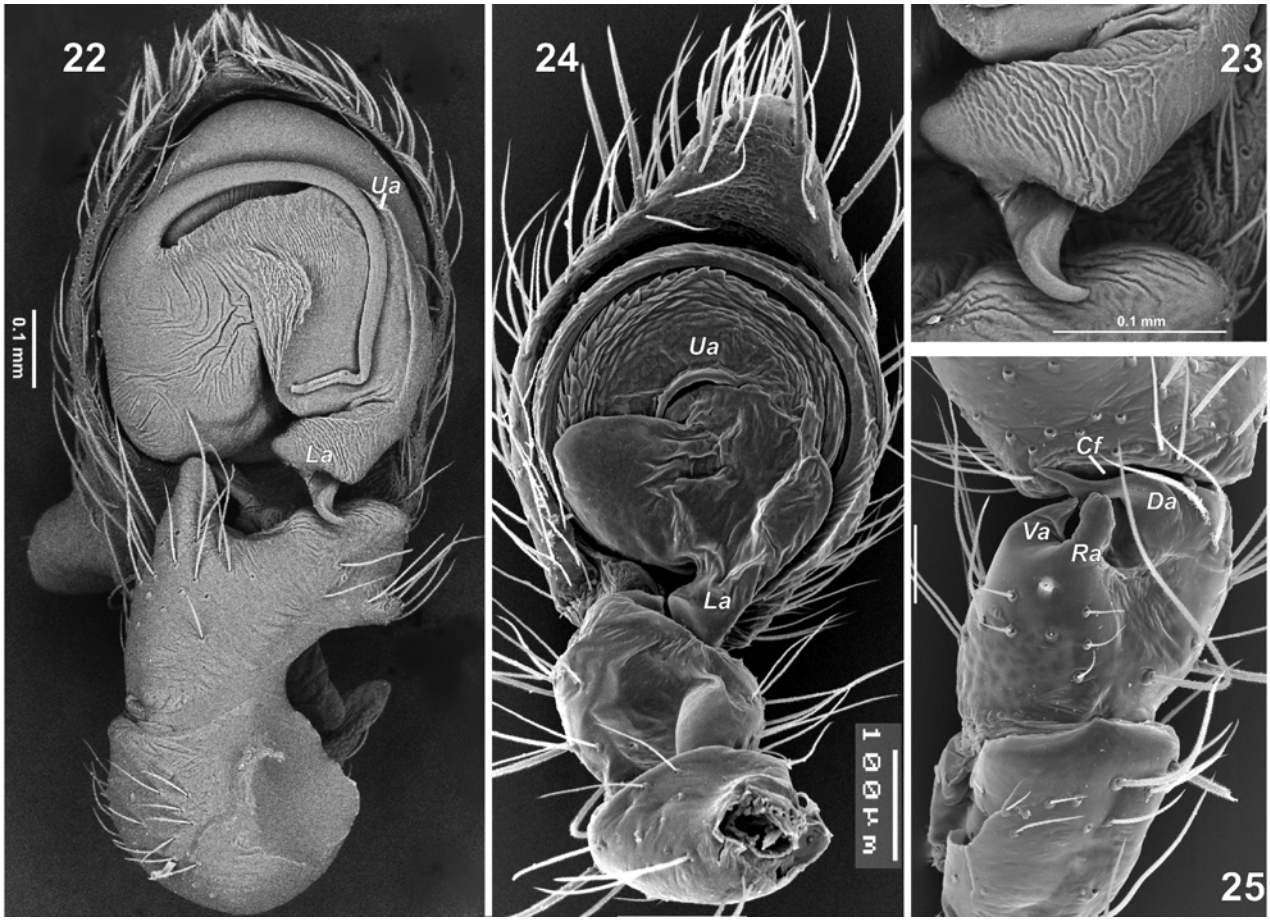
FIGURES 1–9. *Dictynomorpha strandi*, habitus and copulatory organs. 1–5 Habitus and pattern (1, 4 dorsal, 2, 5 ventral, 3 prosoma, dorso-frontal). 6–7 Palp (6 dorsal, 7 proximal). 8–9 Epigyne (8 ventral, 9 dorsal). Scales: 1–4 = 0.5 mm, 5–9 = 0.2 mm. Abbreviations: Co—copulatory opening; Cp—central plate of endogyne; Id—insemination duct; Re—receptacle.



FIGURES 10–15. *Dictynomorpha strandi* (10–13), *Ajmonia smaragdula* (14–15, after Simon (1905)), male palp (10, 14 retrolateral; 11–12 ventral, different aspects; 13, 15 prolateral). Scales = 0.2 mm. Abbreviations: Cc—large cavity of De; De—dorso-posterior extension of cymbium; Dl—dorsal lobe of Pp; Fk—ventral knob of femur; La—lower arm of conductor; Pa—prolateral apophysis of tibia; Po—prolateral outgrowth of De; Pp—dorsal process of patella; Ra—retrolateral tibial apophysis; Rp—retrolateral process of cymbium; Rl—retrolateral lobe of Pp; Te—tegulum; Ua—upper arm of conductor.



FIGURES 16–21. *Dictynomorpha daemonis* **sp. n.**, copulatory organs and somatic features. 16–19 Male palp (16 ventral, 17 retrolateral, 18 dorso-retrolateral, 19 prolateral). 20 Habitus, dorsal. 21 Labium and gnathocoxae, ventral. Scale: 16–19= 0.1 mm, 20 = 0.25 mm. Abbreviations: Cs—cymbial spur; Pa—prolateral apophysis; Ra—retrolateral apophysis; Pp—dorsal process of patella; Pr—retrolateral process of patella; Rp—retrolateral process of cymbium.



FIGURES 22–25. *Dictynomorpha daemonis* sp. n. (22–23), *Lathys spasskyi* (24–25 from Kyrgyzstan), male palp (22, 24 ventral; 23 tip of conductor, ventral; 25 tibia, retrolateral). Abbreviations: Cf—cymbial fovea; Da—dorsal tibial apophysis; La—lower arm of conductor; Ra—retrolateral tibial apophysis; Va—ventral tibial apophysis; Ua—upper arm of conductor.

Brigittea Lehtinen, 1967, reinstated

Brigittea Lehtinen 1967: 219, 360.
Brigittea: Miller & Svatoň 1978: 9.
Dictyna: Wunderlich 1987: 224.

Type species: *Aranea latens* Fabricius, 1775 [= *B. latens*].

Diagnosis. *Brigittea* is the only genus among Dictyninae with ctenidia on the male palpal tibia and a bipartite cribellum.

Comments. The genus was created for eight species *B. latens* (Fabricius, 1775) (♂♀, West Palaearctic), *B. civica* (Lucas, 1850) (♂♀, West Palaearctic), *B. denisi* Lehtinen, 1967 (♂♀, Niger), *B. innocens* (O. Pickard-Cambridge, 1872) (♂♀, West Palaearctic), *B. turbida* (Simon, 1905) (♀, India & Sri Lanka), *B. tullgreni* (Caporiacco, 1949) (♂, Kenya), *B. vicina* (Simon, 1873) (♂♀,West Palaearctic) and *B. umai* (Tikader, 1966) (♂♀, India). Lehtinen (1967) created a table with characters for 23 Dictynidae genera. According to this table, *Brigittea,* unlike *Dictyna,* has a bipartite cribellum, ventral boss and anterior teeth on the male chelicerae, and a spiraled structure of the vulva.

Miller & Svatoň (1978) revised European *Brigittea* and provided an additional character that separates this genus from *Dictyna* – widely separated receptacles [contiguous in the type species, *D. arundinacea* (Linnaeus, 1758) and related species].

Merrett *et al*. (1985), in a faunistic paper, doubted the validity of *Brigittea* stating that "*D.*[*ictyna*] *latens* was included in the new genus *Brigittea* by Lehtinen (1967) on account of its bipartite cribellum and palpal characters; this was followed by Brignoli (1983), but since there seems to be some doubt about the validity of this genus we

have decided to leave *latens* in *Dictyna* for the present". Wunderlich (1987) used these arguments in favour of a formal synonymy of the two genera and suggested that this taxon be regarded as the "*Dictyna latens*-Gruppe". He extended this group to eight species by adding *D. guanchae* Schmidt, 1968 and *D. agaetensis* Wunderlich, 1987 (currently these names are considered as synonyms).

However, while studying Dictynidae from Kazakhstan, we found additional characters which support the validity of *Brigittea*. The male palp in all Dictyninae and partially in Tricholathysinae has a very similar conformation; therefore somatic characters play an important role in the recognition of these genera.

The bipartite cribellum is known in only five genera of Dictyninae and was not reported in Tricholathysinae. *Brigittea* is the only genus among Dictyninae with ctenidia on the male palpal tibia and a bipartite cribellum. The cribellum of *Brigittea* has only one anterior row of setae (*As*), whereas the remaining cribellate area is covered only with fine spigots (*Fs*). This contrasts with that in *Dictyna* in which the anterior two-thirds of the cribellum is covered with setae and one third with fine spigots.

The male chelicerae each have a distinct baso-lateral tooth (*Bt*) in *Brigittea* (Fig 33) which is weakly developed in *Dictyna*. Such a tooth is found not only in the type species, but well documented for *B. innocens* (IJland *et al*. 2012: fig. 4) and *B. guanchae* (Wunderlich 1987: fig. 590) as well. *Brigittea latens* has also cheliceral teeth (*Ct*) lacking in *Dictyna arundinacea* (cf. Figs 28, 33). The cheliceral ridge (*Cr*) of the type species of *Dictyna* and *Brigittea* also differs in its length. Also, the profile of the chelicera in *Dictyna* is strongly concave (Fig. 28), while in *Brigittea* it is almost straight (Fig. 33) or convex (pl. IV, fig.1 in Miller & Svatoň 1978).

The type species of both genera differ essentially in their structure of the ctenidia. In *Dictyna,* ctenidia are set in separate alveoli, while in *Brigittea*, they are located in the same alveolus. The ctenidia in *D. arundinacea* have distinct micro-ridges which are lacking in *B. latens*. The tip of the lower arm of the conductor is also different in *D. arundinacea* and *B. latens*, but this difference is not important as the shape of this tip in *Dictyna* is very variable. More important differences are found in the shape of embolus. In *Dictyna,* it is filamentous and the tip is gradually tapering, while in *B. latens* it is modified (Fig. 36). This character was overlooked by Lehtinen (1967) and Miller & Svatoň (1978). A modified embolus might prove to be the "best" character that separates the two very similar genera *Dictyna* and *Emblyna* (Lehtinen 1967).

Equally, the epigynes of *D. arundinacea* and *B. latens* are entirely different in all respects. *Brigittea latens* has no epigynal sulci, which are present in all *Dictyna sensu stricto*. *Brigittea civica* and *B. vicina* have sulci, although they are much shorter than in *Dictyna*. The most significant differences lie in the shape of "receptacles", which are contiguous in *Dictyna* and forming a V-shaped structure together with the ducts; in contrast, in *Brigittea,* the receptacles do not touch each other and together with ducts form a spiraled (coiled) structure.

Based on the reasons mentioned above, we decided to resurrect *Brigittea* as a valid genus with following species: *B. latens*, *B. civica*, *B. innocens*, *B. vicina* and *B. guanchae* (Schmidt, 1968), **comb. n.** (ex *Dictyna*) from the Canary Islands. The latter species was attributed to the *Dictyna latens* group by Wunderlich (1987).

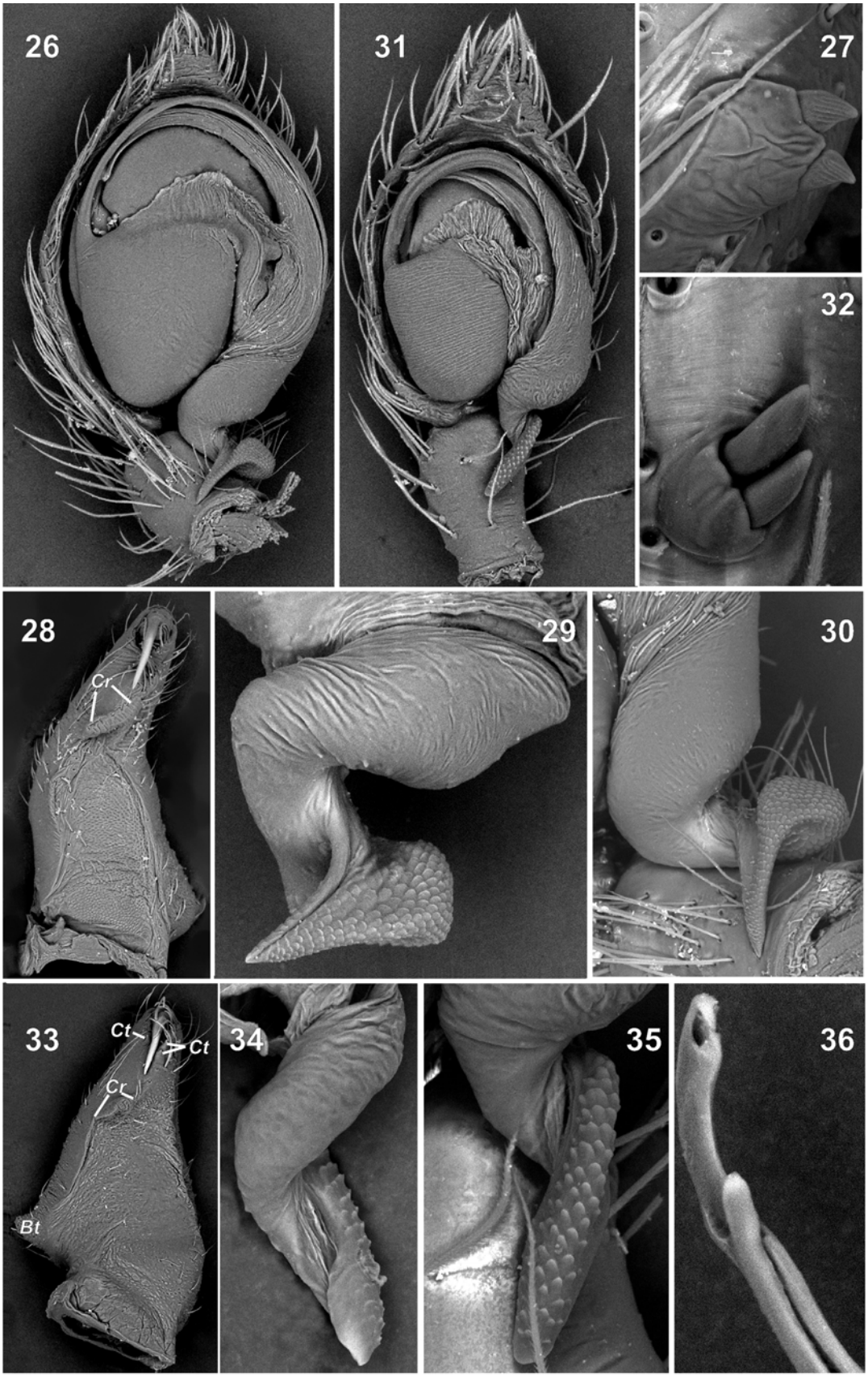
Four species from Afrotropical and South Asian regions considered in *Brigittea* by Lehtinen (1967) (*D. denisi, D. turbida, D. tullgreni* and *D. umai*) remain in *Dictyna*. These species are not properly known and their descriptions lack information about a divided cribellum or modified chelicera.

Brigittea latens **(Fabricius, 1775)**

Figs 31–36, 40–42

Dictyna latens: Wiehle 1953: 91, figs 198–203 (♂♀); Roberts 1995: 85, figs (♂♀).
Brigittea latens: Miller & Svatoň 1978: 9, pl. IV, figs 1–6 (♂♀).
Dictyna latens mutabilis Spassky & Shnitnikov 1937: 268 (♂♀). **Syn. n**.
For the complete list of taxonomic references see Platnick (2014).

Material examined. **KAZAKHSTAN**: ***East-Kazakhtsan*** Area: 3 ♀♀ (PSU-2261), 15 km from Topolyevyi Cape by the road to Akdash, sweeping, 11.07.1936, D.E. Charitonov leg.; 1 ♀ (PSU-2261), 4–5 km N of Alekseyevka Village, grass, 26.07.1936, Kondyreva leg.; 1 ♀ (PSU-2261), Mankarski Mt. Range, steppe on stony slope, bush, 26.07.1936, Kondyreva leg. **RUSSIA**: ***Orenburg*** Area: 19 ♂♂, 22 ♀♀ (PSU-1142), South Urals, Sol-Iletsk Distr., Chybyndy [=Shybyndy] gully, 50°56´N, 54°51´E, steppe, 06.2000, S.L. Esyunin leg.; 3 ♂♂, 1 ♀ (PSU-2793),



FIGURES 26–36. *Dictyna arundinacea* (26–30), *Brigittea latens* (31–36). 26, 31 Male palp, ventral. 27, 32 Ctenidia, dorso-retrolateral. 28, 33 Chelicera, mesal. 29, 34 Tip of conductor, retrolateral. 30, 35 Same, ventral. 36 Tip of embolus. Abbreviations: Bt—retrobasal tooth of chelicera; Cr—cheliceral ridge; Ct—cheliceral teeth.

Orenburg Distr., Sulak, 6.06.1988, Kuznetsov leg.; 2 ♂♂, 1 ♀ (PSU-2794), Sol-Iletsk Distr., Ilek River, 20.07.1988, Kuznetsov leg.; 1 ♂, (PSU-2795), Kuvandyk Distr., Aituar, steppe, 30.05.1996, N.S. Mazura leg.; 1 ♂, 1 ♀ (PSU-3139), Sakmara Distr., Grebeni Hill, steppe, 10.05.2002, Korshikov leg. AZERBAIJAN: 7♂, 4♀, 25juv. (IBPN), Lenkoran Dist., N of Lenkoran, 38°50'N, 48°49'E, -10 m, seashore bog, 22.05.2003, Y.M. Marusik leg.; 1♂ (IBPN), Apsheron Peninsula, Baku, Ganly-Gyol Lake, 40°21.46'N, 49°48.36'E, 20.05 & 06.06.2003, Y.M. Marusik leg.

Comments. Spassky & Shnitnikov (1937) described a new subspecies for the population of *Dictyna latens* occurring near Almaty ("*D. latens* Fabr. *mutabilis*, forma nova"). According to Spassky and Shnitnikov (1937), this population differs from the nominotypical subspecies by the highly variable dorsal abdominal pattern and intensity of colour. No differences have been found in the copulatory organs. Specimens from East Kazakhstan exhibited also variability in the dorsal pattern and the intensity of colour. Specimens examined from Europe also show this variability in pattern, and vary from completely black to whitish with black folium.

Direct comparison of East-Kazakhstan specimens with those from Ural or Azerbaijan has revealed no differences in structure of the copulatory organs, as well as in any somatic characters. Therefore, we synonymize *D. latens mutabilis* with the nominotypical subspecies.

Note. *Dictyna latens mutabilis* has been overlooked by arachnologists therefore it was not mentioned in Roewer's catalogue (Roewer 1942) and subsequent catalogues of Brignoli (1983), Platnick (1993, 1997 and internet versions from 0 to 15, 2000–2014) and World Spider Catalog (2014).

Distribution. This species is known from the Iberian Peninsula (Helsdingen 2014) to East Kazakhstan Area (present data).

Lathys Simon, 1884

Lathys Simon 1884: 321.
Analtella Denis 1947: 145, type *A. brevitarsis* Denis, 1947.
Auximus Simon 1892: 239, type *Amaurobius dentichelis* Simon, 1883.
Lathys: Chamberlin & Gertsch 1958: 8, 25; Lehtinen 1967: 242–243, 352; Marusik *et al*. 2009: 22.

Type species: *Ciniflo humilis* Blackwall, 1855.

Comments. The genus currently includes 44 extant species (Platnick 2014) distributed exclusively in the Holarctic. The single species described outside the Holarctic, *L. mussooriensis* Biswas & Roy, 2008 from India, is misplaced in the family (see below). Twelve species are known only from females and five only from males;19 names are listed as junior synonyms (Platnick 2014). Of 43 species, 32 are known from the Palaearctic; half of them are restricted to the Eastern Palaearctic and another half to the Western Palaearctic.

Early publications paid special attention to the structure of the lower (twisted) tip of the conductor for species level identification. Based on this character, seven species described from the Palaearctic were synonymized with *L. stigmatisata* (Menge, 1869). While studying the conformation of the male palp in the *L. stigmatisata*-group, Marusik *et al*. (2006) it was found that palp is much more complicated than it previously thought; its tibia has three, not two apophyses, the upper arm of the conductor and embolus is long, and sibling species can be separated on the basis of the position of the base of embolus, as well as the shape and position of the loops of seminal ducts. The twisted tip of the conductor was found to be of small taxonomic value and its size corresponds to the size of the epigynal fovea. This study revealed that several species were erroneously synonymized with *L. stigmatisata* (for instance, *L. spasskyi*) but a formal revalidation was not done. Here we provide additional evidence about the validity of the Central Asian species.

Lathys spasskyi Andreeva & Tyshchenko, 1969, reinstated

Figs 24–25, 45–47, 53–60

Lathys spasskyi Andreeva & Tyshchenko 1969: 378, figs 4в–г (♀); Andreeva 1976: 25, figs 24–25 (♀); Marusik *et al*. 2006: 356, figs 14, 24–25 (♂♀).

Material examined. **AZERBAIJAN**: ***Lenkoran Area***: 3♀ (IBPN), Hyrcan Reserve, 38º38,5'N, 48º47,5'E, 23.05.2003, Y.M. Marusik leg.; 1♂, 12♀ (IBPN), environs of Aurora Village, 38º40'N, 48º52'E, 23–28.04.2001, Y.M. Marusik leg. ***Nakhchevan***: 7♀ (IBPN), ca 3 km E of Akhura Village, 39º34' N, 45º11'E, 1400 m, 2.06.2003, Y.M. Marusik leg.. **KAZAKHSTAN**: ***Akmola Area***: 1♀ (ZMMU), Atbasar Town, 1.06.1995, A.V. Gromov leg. ***Dzhambul Area***: 1♂, 3♀ (IBPN), Georgievka Village [=Kordai Town], 22.04.1984, S.V. Ovtchinnikov leg. ***East-Kazakhstan Area***: 2♀ (PSU-6210), environs of Zaisan Lake, Ak-Mas Mt., under stones, 5.08.1936, D.E. Charitonov leg. **KYRGYZSTAN**, ***Chu Area***: 3♂, 1♀ (IBPN), near Kamyshanovka Village, 20.05.1995, S. Ovtchinnikov leg. **UZBEKISTAN**, ***Surkhan-Darya Area***: 24♀ (IBPN), Babatagh Mt. range, 5km SW of Ak-Mechet Village, ca 38ºN 68º12'E, 18.04.–02.05.1994, S.V. Ovtchinnikov leg. **TAJIKISTAN**: 1♂ 13♀ (IBPN), Gazimailik Mt. Range, environs of Gandzhyna Village, 1800 m, 13–18.04.1991, S.V. Ovtchinnikov leg.

Comments. This species was described from only two females from Gandzhyna (Tajikistan). While making a survey of the cribellate spiders of Kyrgyzstan, Ovtchinnikov (1988) came to the conclusion that *L. spasskyi* is a junior synonym of *L. stigmatisata*. Our study of Palaearctic *Lathys* shows that the two species were synonymized in error. Although it was previously noted (Marusik *et al*. 2006) that *L. spasskyi* is a valid species, a formal revalidation was not done. Here we resurrect *L. spasskyi* and provide a diagnosis that separates the two species.

Diagnosis. Males of *L. spasskyi* can be separated from the related *L. stigmatisata* by the palpal patella lacking conical outgrowth (cf. Figs 47, 50), the shorter tip of the conductor (*Tc*) (cf. Figs 47, 53–54 & 50–52), the position of the base of embolus (*Eb*) (*ca*. 9 o'clock in *L. spasskyi* and *ca.* 6 o'clock in sibling species) and the shape and position of seminal loop (*Sl*, cf. Figs 51, 53). Females of the two species have an equal number of vertical (*Vl*) and horizontal (*Hl*) loops of insemination ducts but differ in the size of the atria (*Fo*) (smaller in *L. spasskyi*), and the distance between the atria (*Es*) (wider than the insemination duct in *L. spasskyi*, and with atria touching or almost touching each other in *L. stigmatisata*) (cf. Figs 45–46, 48–49).

Description. A detailed description will be given in a special paper devoted to Palaearctic *Lathys* (Marusik, in preparation).

Distribution. So far this species is known from Azerbaijan to East-Kazakhstan Area, and from South Ural to Tajikistan (present data).

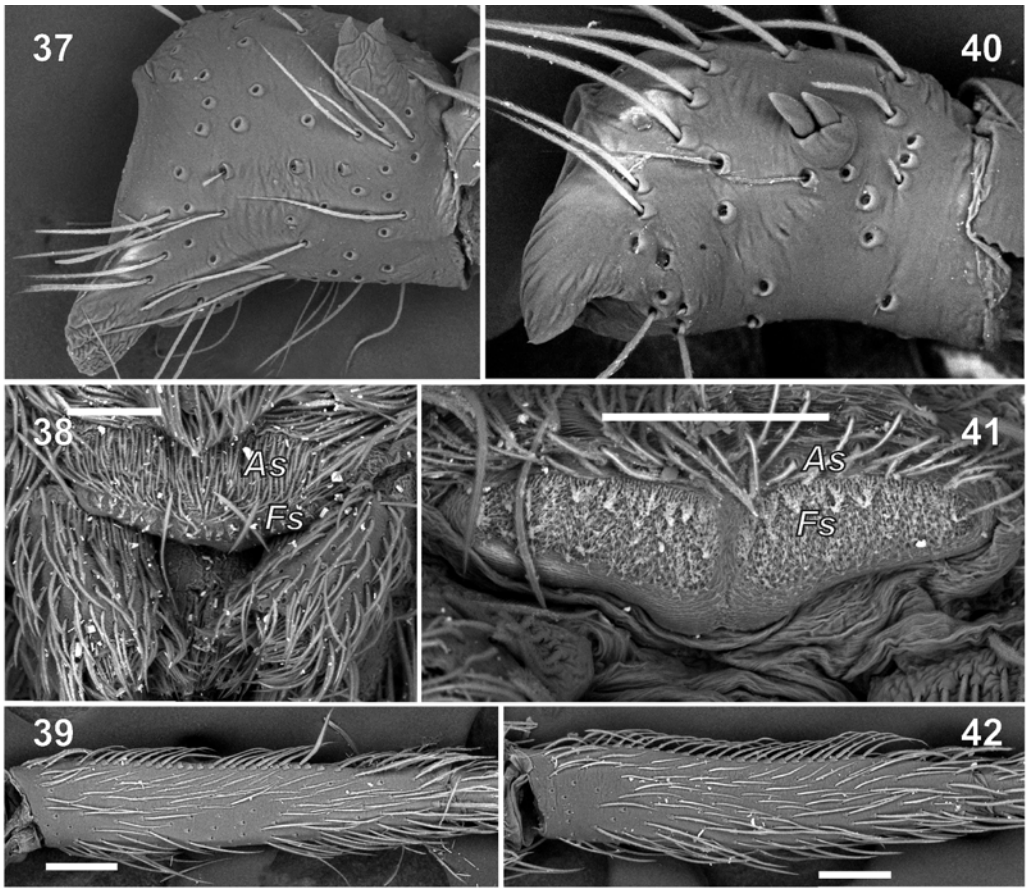
***Lathys truncata* Danilov, 1994**
Figs 43–44

Lathys truncatus Danilov 1994: 204, figs 34–35 (♀).

Material examined. **KAZAKHSTAN**, ***Almaty Area***: 3♀ (ZMMU), Zailiisky Alatau Mts, *ca.* 20 km SE Turgen, Turgen' River Canyon, near Batun, 43°14'N, 77°46'E, 1750 m, *Picea*, *Betula*, *Salix, etc*. forest, 25.05.2001, S. Golovatch leg.; 11 ♀ (PSU-6211), Almaty, Medeo, Zailiisky Alatau Mts., 43°10'N, 77°04'E, 1600–1700 m, *Picea*, *Betula, etc*. forest, 27.05.2001, S. Golovatch leg.; 8♀ (MMUM), Uigursky Distr., 5 km SE Kyrgyzsai [= Podgornoe], Ketmen Mts., 43°17'N, 79º31'E, 1500–1900 m, *Picea*, *Betula*, *Populus* etc. forest, 1–2.06.2001, S. Golovatch leg.; 1♀ (MMUM), Uigursky Distr., 11 km NW Chunja Town, Charyn River Canyon, 43º37'N, 79º20'E, 650 m, riverine *Fraxinus*, *Populus*, *Salix, etc*. forest, 29–31.05.2001, S. Golovatch leg. **RUSSIA**: ***Tuva***: 1♂ 3♀ (ISEA), NW bank of Azas Lake, Krasnyi Kamen, 52°24'N, 96°28'E, 850–900 m, on tree trunks, 19–23.06.1989, D.V. Logunov leg. ***Buryatia***: 2♀ (ZMUT), Barguzin Range, Olso River, 54°52'N, 110°55'E, 950 m, cliff, 6.07.1996, S. Koponen leg.

Comments. This species was described from three females from Buryatia. It was diagnosed as having more vertical coils of insemination ducts wrapping the receptacle than in *L. stigmatisata*. Danilov (1994) misidentified *L. stigmatisata*, a species absent in Siberia, and actually compared his new species with *L. alberta* Gertsch, 1946. *Lathys truncata* differs from both species (*L. stigmatisata* and *L. alberta*) by having white guanine spots on the dorsum of the abdomen. It seems that this species inhabits tree trunks and cliffs. Danilov (1994: fig. 34) illustrated an epigyne with two vertical loops of insemination ducts as in specimens from Almaty Area (Fig. 44). Another figure (Danilov 1994: fig. 35) shows an epigyne with three loops as in all specimens we examined from Buryatia (Fig. 43). It seems that this character is variable in this species.

Distribution. This species is known from Almaty Area to Buryatia.



FIGURES 37–42. *Dictyna arundinacea* (37–39), *Brigittea latens* (40–42). 37, 40 Male palpal tibia, dorsal. 38, 41 Female cribellum, ventral; 38, 42 Female calamistrum, retrolateral. Abbreviations: As—anterior row(s) of setae; Fs—fine spigots.

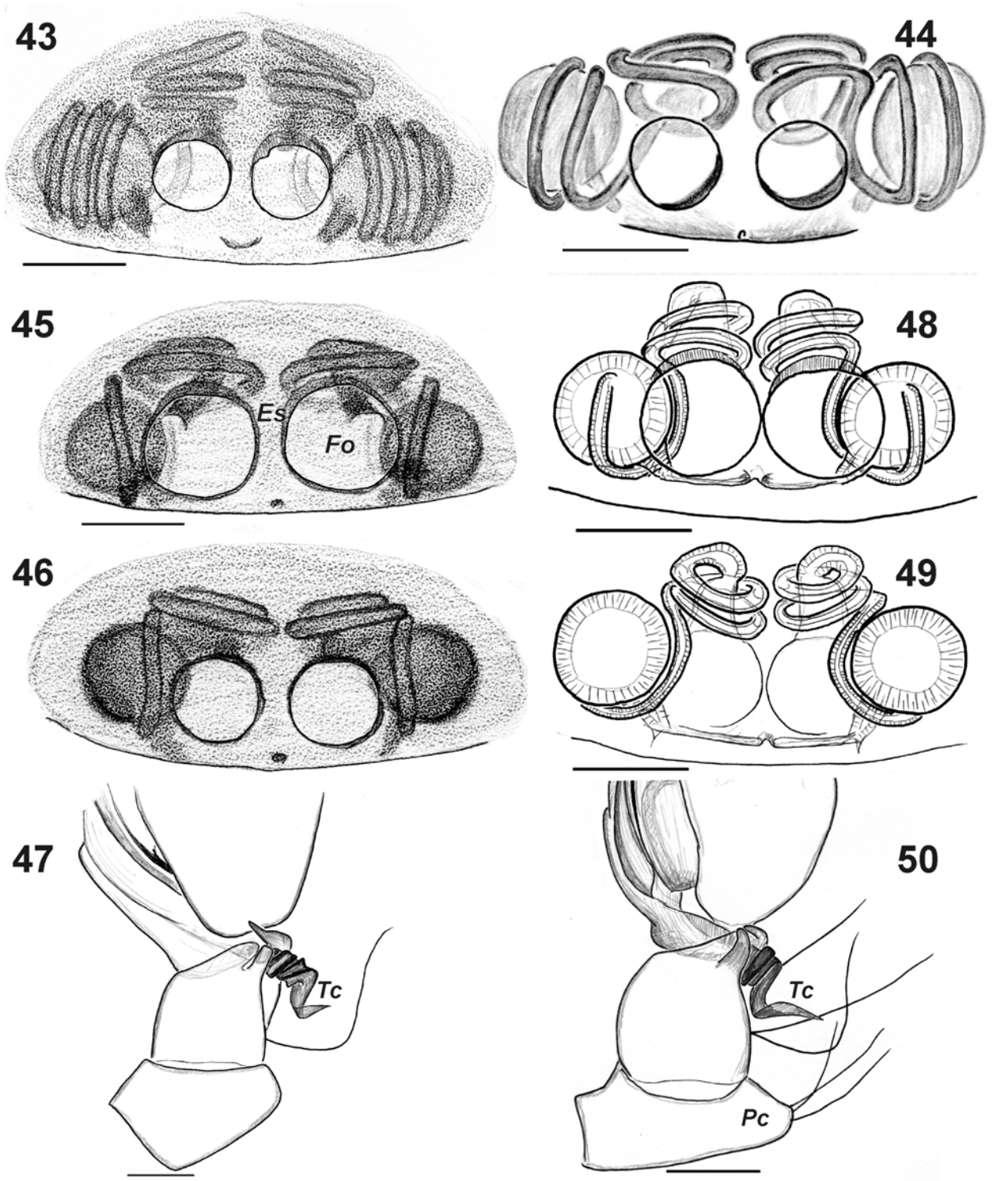
"*Lathys*" *mussooriensis* Biswas & Roy, 2008

Lathys mussooriensis Biswas & Roy 2008: 44, figs 1–3 (♀).

Comments. This species was described from a holotype female and 2 immature females from Uttaranchal State (northern India). The description of the species, comments on the genus and its taxonomic placement is full of contradictions and confusions. Biswas & Roy (2008) report the distribution of the genus as New England, Canada and Asia, neglecting that the type species is from Europe. In the description of the species, the authors mentioned that *L. mussooriensis* is similar to Theridiidae and allied to Lycosidae: "These spiders are peculiar in their body shapes look like as Theridiid, having the elongated abdomen. Detailed study of different morphological features, clearly shows that they are allied to Lycosidae" (Biswas & Roy 2008: p. 44). The distribution of the species is given as "India : Mussoorri, Uttaranchal (New record). Elsewhere: North America, Canada)" (Biswas & Roy 2008: p. 46). A few lines below the authors state in their comments: "*Lathys* is one of the important genus under the family Dictynidae which was only found in America and Europe". In the diagnosis, Biswas & Roy (2008) compare their new species with the Nearctic *L. foxii* (Marx, 1891). The authors mentioned that this is the first record of *Lathys* on the Indian sub-continent, neglecting *Lathys balestrerii* Caporiacco, 1934 (considered a synonym of *L. stigmatisata*) described from British India (now Pakistan).

The description and figures provided for habitus and copulatory organs indicate that the species belongs not to the Dictynidae but to the Amaurobiidae. The body length of the Indian "*Lathys*" (15 mm) exceeds by 3–8 times size of other *Lathys* species and larger than any Dictynidae known. The epigyne and vulva of *"L." mussooriensis* is similar to epigynes of *Himalmartensus* Wang & Zhu, 2008, a genus known to include three species from Nepal. The epigyne of *"L." mussooriensis* has long coiled insemination ducts forming a kind of column. *Himalmartensus* lacks a cribellum but has a colulus (Wang & Zhu 2008). Although it is unknown if *"L." mussooriensis* has a

cribellum or not, *"L." mussooriensis* differs from members of *Himalmartensus* by the number of cheliceral teeth (1 in promargin and 2 in retromargin [such state is unknown in any Amaurobiidae and *Lathys*, and authors very likely overlooked small teeth], and 6–7 promarginal and 5–8 retromarginal in *Himalmartensus*). Therefore, we transfer this species from Dictynidae to Amaurobiidae and suggest the new combination *Himalmartensus mussooriensis* (Biswas & Roy, 2008), **comb. n.**



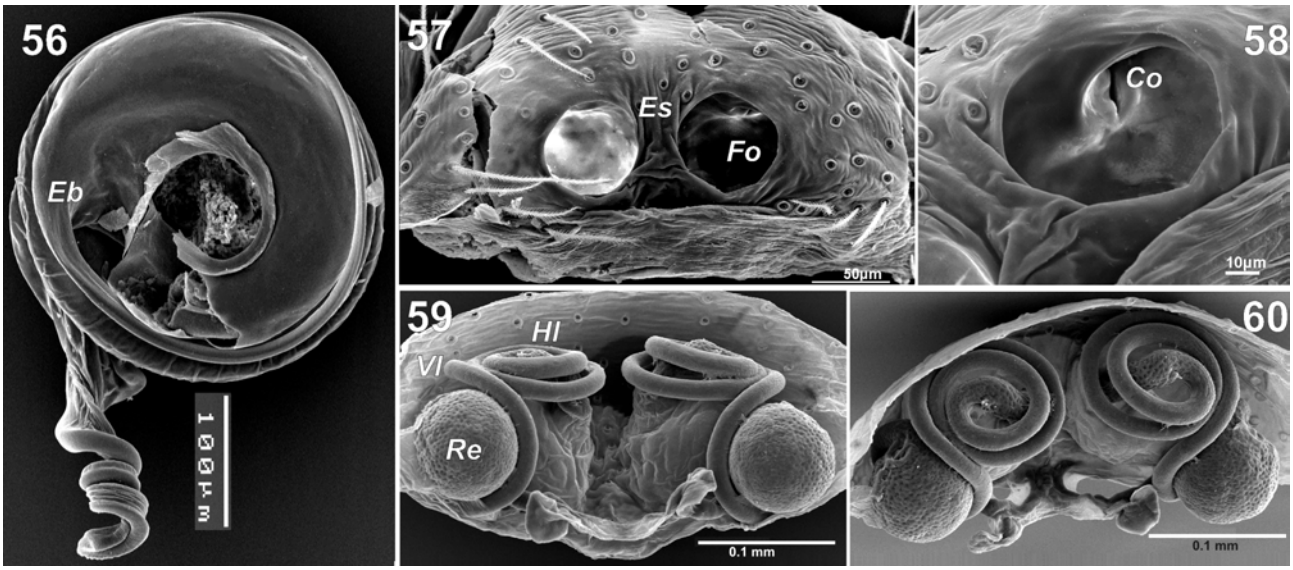
FIGURES 43–50. *Lathys truncata* (43 from Buryatia, 44 from Almaty Area), *L. spasskyi* (45–47 from Kyrgyzstan), *L. stigmatisata* (48–50 from Azerbaijan), copulatory organs. 43–46, 48 Epigyne, ventral. 47, 50 Male palp, retrolateral. 49 Epigyne, dorsal. Scales = 0.1 mm. Abbreviations: Es—septum; Fo—atrium; Pc—conical outgrowth of patella; Tc—tip of conductor.

FIGURES 51–55. *Lathys stigmatisata* (51–52 from Crimea), *L. spasskyi* (53–55 ♂ from Kyrgyzstan, ♀ from Akmola), copulatory organs. 51, 53 Bulbus, dorsal. 52, 54 Tip of conductor. 55 Epigyne, fronto-ventral. Abbreviations: Eb—base of embolus; Fo—atrium; Sl—seminal loop.

It is worth noting that *H. mussooriensis* is also similar to "*Titanoeca*" *palpator* Hu & Li, 1988, a cribellate species from Xizang (Tibet) which also is large, and has a similar epigyne. The species from Tibet appears also to be misplaced in Titanoecidae judging from the copulatory organs and large body length (up to 17.4 mm).

Acknowledgements

We are grateful to all colleagues who provided material used for this study Sergei I. Golovatch (Moscow), late Sergei V. Ovtchinnikov (Bishkek), and Seppo Koponen (Turku). English of the earlier draft was kindly checked and corrected by Joey Slowik (Fairbanks, Alaska). We thank Peter Jäger and two anonymous reviewers for their kind and detailed comments on this manuscript. This work was supported in part by the Russian Foundation for Basic Research (grants 09-04-01365, 11-04-01716, 12-04-01548, 12-04-90708-mob_st).



FIGURES 56–60. *Lathys spasskyi* from Kyrgyzstan, copulatory organs. 56 Bulbus, dorsal. 57 Epigyne, ventral. 58 Atrium of epigyne showing copulatory opening (*Oc*). 59–60 Epigyne (59 dorsal, 60 dorso-frontal). Scales = 0.1 mm, if not otherwise indicated. Abbreviations: Co—copulatory opening; Eb—base of embolus; Es—septum; Fo—fovea; Hl—horizontal loop of insemination duct; Re—receptacle; Vl—ventral loop of insemination duct.

References

Andreeva, E.M. (1976) *Spiders of Tajikistan. The fauna and zonal-ecological distribution*. Donish, Dushanbe, 193 pp. [in Russian]

Andreeva, E.M. & Tyshchenko, V.P. (1969) Materials on the spider fauna of Tajikistan. I. Haplogynae, Cribellatae, Ecribellatae, Trionychae (Pholcidae, Palpimanidae, Hersiliidae, Oxyopidae). *Entomologicheskoe obozrenie*, 48 (2), 373–384. [in Russian]

Biswas, B. & Roy, R. (2008) Description of six new species of spiders of the genera *Lathys* (Family: Dictynidae), *Marpissa* (Family: Salticidae), *Misumenoides* (Family: Thomisidae), *Agroeca* (Family: Clubionidae), *Gnaphosa* (Family: Gnaphosidae) and *Flanona* (Family: Lycosidae) from India. *Records of the Zoological Survey of India*, 108, 43–57.

Brignoli, P.M. (1983) *A catalogue of the Araneae described between 1940 and 1981*. Manchester University Press, Manchester, 755 pp.

Chamberlin, R.V. & Gertsch, W.J. (1958) The spider family Dictynidae in America north of Mexico. *Bulletin of the American Museum of Natural History*, 116, 1–152.
http://dx.doi.org/10.5479/si.03629236.212

Danilov, S.N. (1994) Cribellate spiders from Transbaikalia. *Entomologicheskoe obozrenie*, 73 (1), 200–209. [in Russian]

Denis, J. (1947) Araignées de France. I. Araignées de Vendée avec la description d'une espèce nouvelle des Pyrénées-Orientales. *Revue Française d'Entomologie*, 14, 145–155.

Helsdingen, P. (2014) Fauna Europaea: Araneae, version 2.6. Available from: http://www.faunaeur.org/ (accessed 30 May 2014)

IJland, S., van Helsdingen, P.J. & Miller, J. (2012) On some spiders from Gargano, Apulia, Italy. *Nieuwsbrief Spinnenwerkgroep Nederland*, 32, 2–20.

Lehtinen, P.T. (1967) Classification of the cribellate spiders and some allied families, with notes on the evolution of the suborder Araneomorpha. *Annales Zoologici Fennici*, 4, 199–468.

Marusik, Y.M. & Esyunin, S.L. (2010) On the northernmost *Ajmonia* Caporiacco, 1934 (Aranei: Dictynidae: Dictyninae). *Journal of Natural History*, 44 (5/6), 361–367.
http://dx.doi.org/10.1080/00222930903383578

Marusik, Y.M., Ovchinnikov, S.V. & Koponen, S. (2006) Uncommon conformation of the male palp in common Holarctic spiders belonging to the *Lathys stigmatisata* group (Araneae, Dictynidae). *Bulletin of the British arachnological Society*, 13, 353–360.

Merrett, P., Locket, G.H. & Millidge, A.F. (1985) A check list of British spiders. *Bulletin of the British arachnological Society*, 6, 381–403.

Mikhailov, K.G. (2013) The spiders (Arachnida: Aranei) of Russia and adjacent countries: a non-annotated checklist. *Arthropoda Selecta*, 3 (Supplement), 1–262.

Miller, F. & Svatoň, J. (1978) Einige seltene und bisher unbekannte Spinnenarten aus der Slowakei. *Annotationes Zoologicae et Botanicae*, 126, 1–19.
Ovtchinnikov, S.V. (1988) Materials on the fauna of the spider superfamily Amaurobioidea in Kirghizia. *In*: Pek, L.V. (Ed.), *Entomologicheskie issledovaniya v Kirgizii*, 19, pp. 126–131. [Ilim Press, Frunze, in Russian]
Platnick, N. (1993) *Advances in spider taxonomy 1988–1991. With synonymies and transfers 1940–1980*. New York, 846 pp.
Platnick, N. (1997) *Advances in spider taxonomy 1992–1995. With redescriptions 1940–1980*. New York, 976 pp.
Platnick, N.I. (2014) The World Spider Catalog, versions 0–15. American Museum of Natural History, New York. Available from: http://research.amnh.org/entomology/spiders/catalog/index.html (accessed 28 August 2014)
Roewer, C.F. (1942) *Katalog der Araneae von 1758 bis 1940*. *Vol. 1.* 'Natura', Bremen, 1040 pp.
Roberts, M.J. (1995) *Collins Field Guide: Spiders of Britain & Northern Europe*. Harper Collins, London, 383 pp.
Simon, E. (1884) Arachnides nouveaux d'Algérie. *Bulletin de la Société Zoologique de France*, 9, 321–327.
Simon, E. (1892) *Histoire naturelle des araignées*. Paris, 1, 1–256.
Simon, E. (1905) Voyage de M. Maurice Maindron dans l'Inde meridionale. Arachnides. *Annales de la Societe Entomologique de France*, 74, 160–180.
Spassky, S. (1939) Araneae palaearcticae novae. III. *Festschrift Embrik Strand*, 5, 138–144.
Spassky, S.A. & Shnitnikov, S.A. (1937) Materials to the spider fauna of Kazakhstan. *In*: Pavlovskii, M.E. (Ed.), *Materialy po vreditelyam zhivotnovodstva i faune preimuschestvenno Yuzhnogo Kazakhstana,* 2, pp. 264–300. [Moscow-Leningrad, in Russian]
Wang, X.-P. & Zhu, M.-S. (2008) *Himalmartensus*, a new genus of the spider family Amaurobiidae from Nepal (Araneae). *Journal of Arachnology*, 36, 241–250.
http://dx.doi.org/10.1636/CA07-102.1
Wiehle, H. (1953) Spinnentiere oder Arachnoidea (Araneae) IX: Orthognatha-Cribellatae-Haplogynae-Entelegynae (Pholcidae, Zodariidae, Oxyopidae, Mimetidae, Nesticidae). *Tierwelt Deutschlands*, 42, 1–150.
World Spider Catalog (2014) World Spider Catalog. Natural History Museum Bern, version 15.5. Available from: http://wsc.nmbe.ch (accessed 28 August 2014)
Wunderlich, J. (1987) Die Spinnen der Kanarischen Inseln und Madeiras: Adaptive Radiation, Biogeographie, Revisionen und Neubeschreibungen. *Taxonomy & Ecology*, 1, 1–435. [Verlag J. Wunderlich, Straubenhardt]