

New data on the jumping spiders of Turkmenistan (Aranei Salticidae)

Новые данные о пауках-скакунчиках Туркменистана (Aranei Salticidae)

W. Wesolowska

В. Весоловска

Zoological Institute of the Wrocław University, Sienkiewicza 21, Wrocław PL-50 335 Poland.

Зоологический институт Вроцлавского университета, Вроцлав, Польша.

KEY WORDS: Salticidae, Turkmenistan, faunistic review, synonymy, new species.

КЛЮЧЕВЫЕ СЛОВА: Salticidae, Туркменистан, фаунистический обзор, синонимия, новые виды.

ABSTRACT: The paper presents the results of a taxonomic study of Salticidae of Turkmenistan. Forty-one species are reported, among them six are described as new: *Aelurillus brutus* sp.n., *A. kopetdaghi* sp.n., *Chalcoscirtus lepidus* sp.n., *C. pauper* sp.n., *Yllenus mirandus* sp.n., and *Y. probatus* sp.n.; six species are new to the fauna of Turkmenistan: *Euophrys uralensis* Logunov, Cutler et Marusik, 1993, *Heliophanus mordax* (O. Pickard-Cambridge, 1872), *Plexippoides flavescens* (O. Pickard-Cambridge, 1872), *Pseudicius courtlaudi* Bristowe, 1934, *Pseudicius spasskyi* (Andreeva, Hęciak et Prószyński, 1984), and *Yllenus somonensis* Prószyński, 1982. The first descriptions of the males of *Salticus dzhungaricus* Logunov, 1992, and *Yllenus flavociliatus* Simon, 1895, are provided. Five new synonyms have been established: *Afraflacilla arabica* Wesolowska et van Harten, 1994 = *Pseudicius braunsi* Peckham et Peckham, 1903; *Heliophanus ignorabilis* Wesolowska, 1986 = *H. mordax* (O. Pickard-Cambridge, 1872); *Menemerops solistimus* Wesolowska et van Harten, 1994 = *Plexippoides flavescens* (O. Pickard-Cambridge, 1872); *Plexippoides arabicus* Prószyński, 1989 = *P. flavescens* (O. Pickard-Cambridge, 1872); *Sitticus vilis* Kulczyński, 1895 = *S. ammophilus* Thorell, 1875 (valid names on the right). The genus *Menemerops* Prószyński, 1992, is synonymized under *Plexippoides* Prószyński, 1976. The female of *Chalcoscirtus martensi parvulus* Marusik, 1991, has been recognized to be that of *C. karakurt* Marusik, 1991.

РЕЗЮМЕ: Статья содержит результаты таксономического изучения пауков-скакунчиков Туркменистана. Всего обнаружен сорок один вид, шесть из них описаны как новые: *Aelurillus brutus*

sp.n., *A. kopetdaghi* sp.n., *Chalcoscirtus lepidus* sp.n., *C. pauper* sp.n., *Yllenus mirandus* sp.n. и *Y. probatus* sp.n. Шесть видов впервые обнаружены в фауне Туркменистана: *Euophrys uralensis* Logunov, Cutler et Marusik, 1993, *Heliophanus mordax* (O. Pickard-Cambridge, 1872), *Plexippoides flavescens* (O. Pickard-Cambridge, 1872), *P. courtlaudi* Bristowe, 1934, *Pseudicius spasskyi* (Andreeva, Hęciak et Prószyński, 1984) и *Yllenus somonensis* Prószyński, 1982. Впервые описаны самцы *Salticus dzhungaricus* Logunov, 1992, и *Yllenus flavociliatus* Simon, 1895. Установлено пять новых синонимов: *Afraflacilla arabica* Wesolowska et van Harten, 1994 = *Pseudicius braunsi* Peckham et Peckham, 1903; *Heliophanus ignorabilis* Wesolowska, 1986 = *H. mordax* (O. Pickard-Cambridge, 1872); *Menemerops solistimus* Wesolowska et van Harten, 1994 = *Plexippoides flavescens* (O. Pickard-Cambridge, 1872); *Plexippoides arabicus* Prószyński, 1989 = *P. flavescens* (O. Pickard-Cambridge, 1872); *Sitticus vilis* Kulczyński, 1895 = *S. ammophilus* Thorell, 1875 (валидные названия справа). Род *Menemerops* Prószyński, 1992, сведен в синонимы к *Plexippoides* Prószyński, 1976. Выяснено, что самки *Chalcoscirtus martensi parvulus* Marusik, 1991, на самом деле принадлежат *C. karakurt* Marusik, 1991.

Introduction

Studies on spiders of Turkmenistan have been carried out for over 120 years. The first data on the Salticidae of that area are those given in Kroneberg [1875], where 19 species have been mentioned, some of these species yet unidentifiable. Several other species have been added to this list by Simon [1889]



Fig. 1. Localities of Salticidae in Turkmenistan: 1 — Kyzyl-Su, 2 — Chilmamedkum Sands, 3 — South Ustyurt, Kaplankyrskii Reserve, 4 — Bolshoy Balkhan Mts, 5 — Tashauz, 6 — Chardzhou Area, Amudaryinskii Reserve (Kabakly), 7 — Chardzhou Area, Amudaryinskii Reserve (Farab, including Narghyz Island), 8 — Repetek, 9 — SW-Kopetdagh Mts, Kara Kala (including Parkhai, Palvanzar, Eldere and Syunt), 10 — SW-Kopetdagh Mts, Khodzha-kala (including Peredovoi Ridge), 11 — SW-Kopetdagh Mts, Monzukul, 12 — SW Kopetdagh Mts, Aidere, 13 — Ashkhabad Area (including Yashlyk), 14 — Mary Area, Sultanbent, 15 — Badkhyz, 16 — Lake Sarykamysh, 17 — Polykhatum, Gezyadyk Mt.

Рис. 1. Места сбора материала на территории Туркменистана: 1 — Кызыл-су, 2 — Чильмамедкумы, 3 — Южный Устюрт, Капханкырский заповедник, 4 — Большой Балхан, 5 — Тапшауз, 6 — Чарджоу, Амударьинский заповедник (Кабаклы), 7 — Чарджоу, Амударьинский заповедник (Фараб, вкл. о.Наргыз), 8 — Репетек, 9 — ЮЗ Копетдаг, Кара-Кала (включая Пархай, Палванзар, Елдере и Сюнт), 10 — ЮЗ Копетдаг, Ходжакала (включая Передовой хр.), 11 — ЮЗ Копетдаг, Монжуклы, 12 — ЮЗ Копетдаг, Айдере, 13 — Ашхабад и окрестности (паяс Яшлык), 14 — Мары и окрестности, Султанбент, 15 — Бадхыз, 16 — озеро Сарыкамыш, 17 — Пулихатум, гора Гэзгыдык.

and some later authors. All these scattered informations have been collated by Nenilin [1984a, 1985], while Mikhailov & Fet [1994] have produced the most recent check-list of the Turkmenistan spiders, with the Kopetdagh Mts and Badkhyz remaining the only areas of that country more or less thoroughly explored from an araneological viewpoint [Alekseev et al., 1977; Ovtsharenko & Fet, 1980; Nenilin, 1984b; Fet, 1983, 1985; Kuznetsov & Fet 1986; Logunov, 1995a, b].

Altogether, the published record lists 66 species of Salticidae of Turkmenistan. However, as several of those records seem to be based on misidentifications (see below), the real number of salticids so far reported from Turkmenistan slightly exceeds 50, this being a quite inadequate figure. The current study adds to the knowledge of the Salticidae fauna of that area.

The paper is based on materials kept in the Zoological Institute of the Russian Academy of Sciences, St. Petersburg (ZIP), the Zoological Museum of the Moscow State University (ZMMU), and the Zoological Museum of the Institute for Systematics and Ecology of Animals, Siberian Division of the Russian Academy of Sciences, Novosibirsk (ISE). The materials analysed have largely been collected during the last decade, only in a few cases older collections have become involved.

The collecting localities are shown in Fig. 1.

Notes on some doubtful records

Certain of the dubious species per se or species which occurrence in Turkmenistan is doubtful are commented about below:

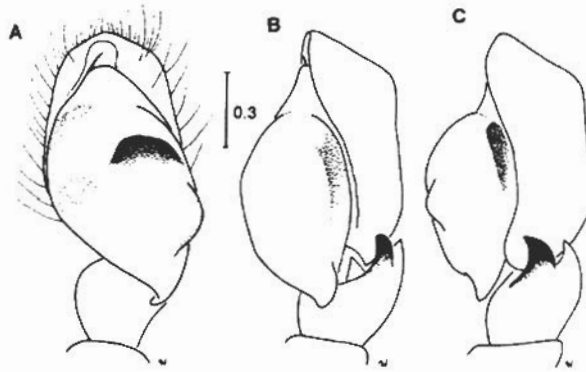


Fig. 2. *Aelurillus concolor* Kulczyński: A-C — male palp, ventral and two lateral views.

Рис. 2. *Aelurillus concolor* Kulczyński: A-C — палепа самца, вентрально и дважды латерально.

1. *Euophrys frontalis* (Walckenaer, 1802). Reported by Mikhailov & Fet [1994] from the SW Kopetdagh. As stated by Logunov et al. [1993], all records of this species in Middle Asia are erroneous. Most probably, Mikhailov & Fet [1994] have dealt with *E. uralensis* Logunov et al.,

1993, or *E. pseudogambosa* Strand, 1915 (see below in "Notes" under *E. uralensis*).

2. *Heliophanus melinus* L. Koch, 1867. Reported by Simon [1899] and Fet [1983] from the SW Kopetdagh. These records, in my view, need verification upon pertinent material, as they may belong to *Heliophanus patagiatus* Thorell, 1875, the latter taxon a most closely related and therewith widespread Palearctic species.

3. *Heliophanus niveivestis* Simon, 1889. Described by Simon [1899] from Bairam-Ali (= Old Merv), also listed by Mikhailov & Fet [1994]. As the holotype of this species seems to be lost, *Heliophanus niveivestis* has been considered *nomen dubium* [cf. Wesolowska, 1986].

4. *Heliophanus rufithorax* Simon, 1868. Reported from Bakharden by Nenilin [1984a], with the only earlier record in Middle Asia being that by Kroneberg [1875] from Kirghizstan (Uch-Kurgan). However, the current distribution of *H. rufithorax* has proved to be restricted to a few localities in the S Mediterranean (Wesolowska, 1986: fig. 884). Thus, all Middle Asian records require confirmation upon pertinent material.

5. *Menemerops afghanus* (Roewer, 1961). First reported by Nenilin [1985], sub *Evarcha afghana*, from the SW Kopetdagh and after that listed by Mikhailov & Fet

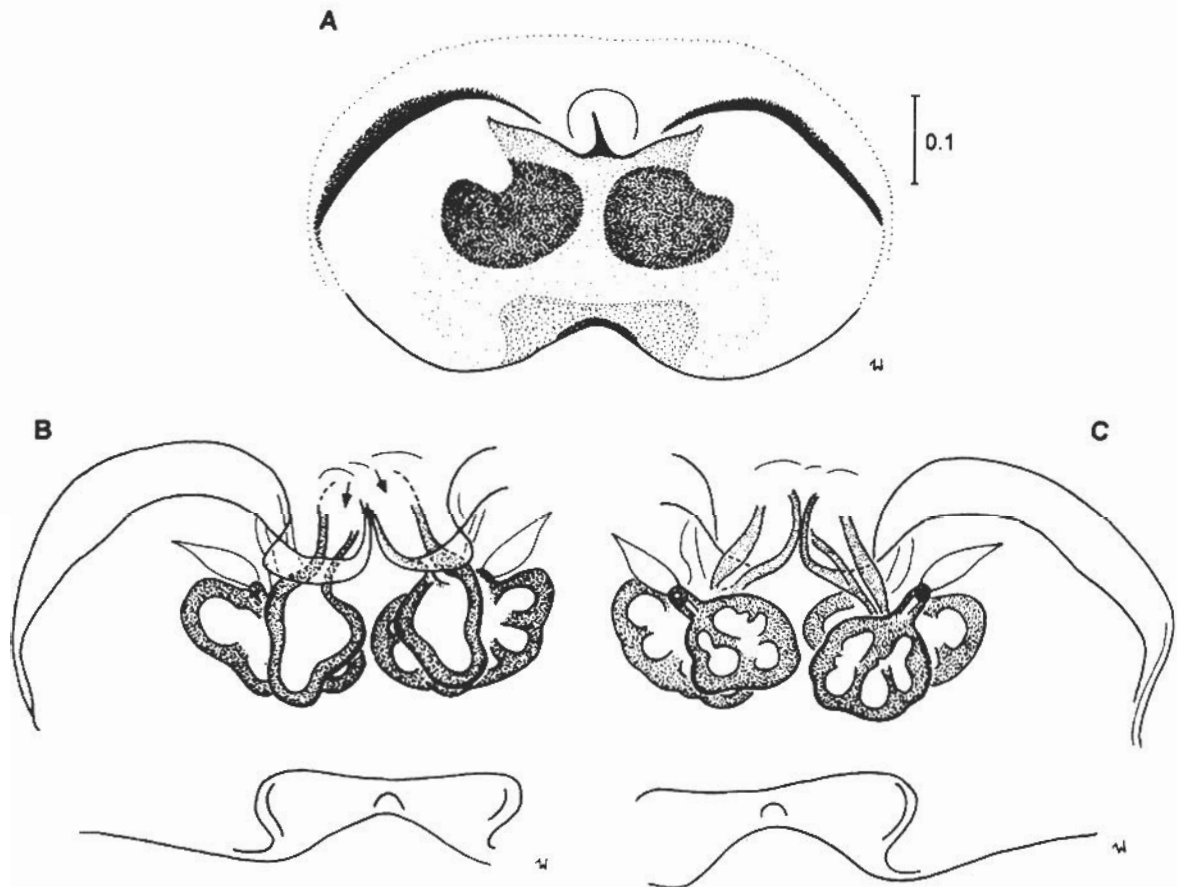


Fig. 3. *Aelurillus concolor* Kulczyński: A — epigyne; B, C — spermathecae, ventral and dorsal views.

Рис. 3. *Aelurillus concolor* Kulczyński: A — эпигина; B — сперматека, вентрально и дорсально.

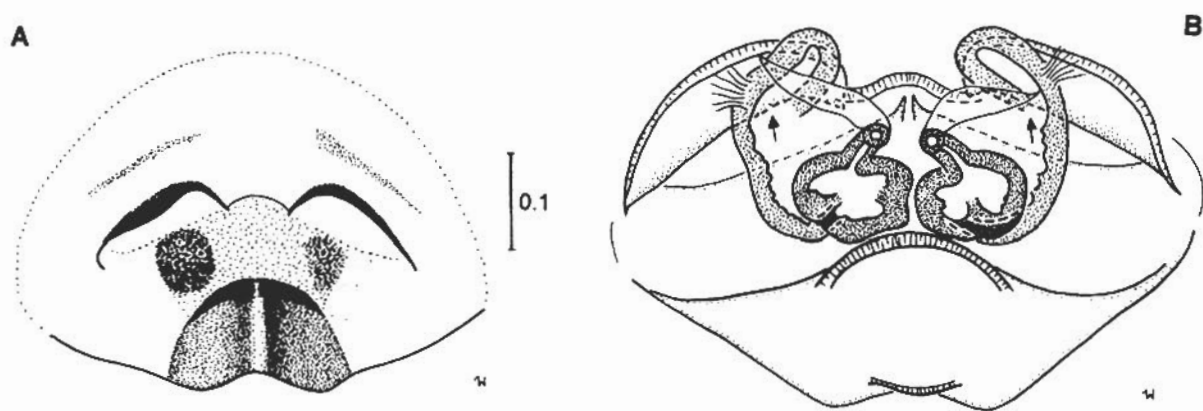


Fig. 4. *Aelurillus brutus* sp.n., holotype: A — epigyne; B — spermathecae.

Рис. 4. *Aelurillus brutus* sp.n., голотип: А — эпигина; В — сперматека.

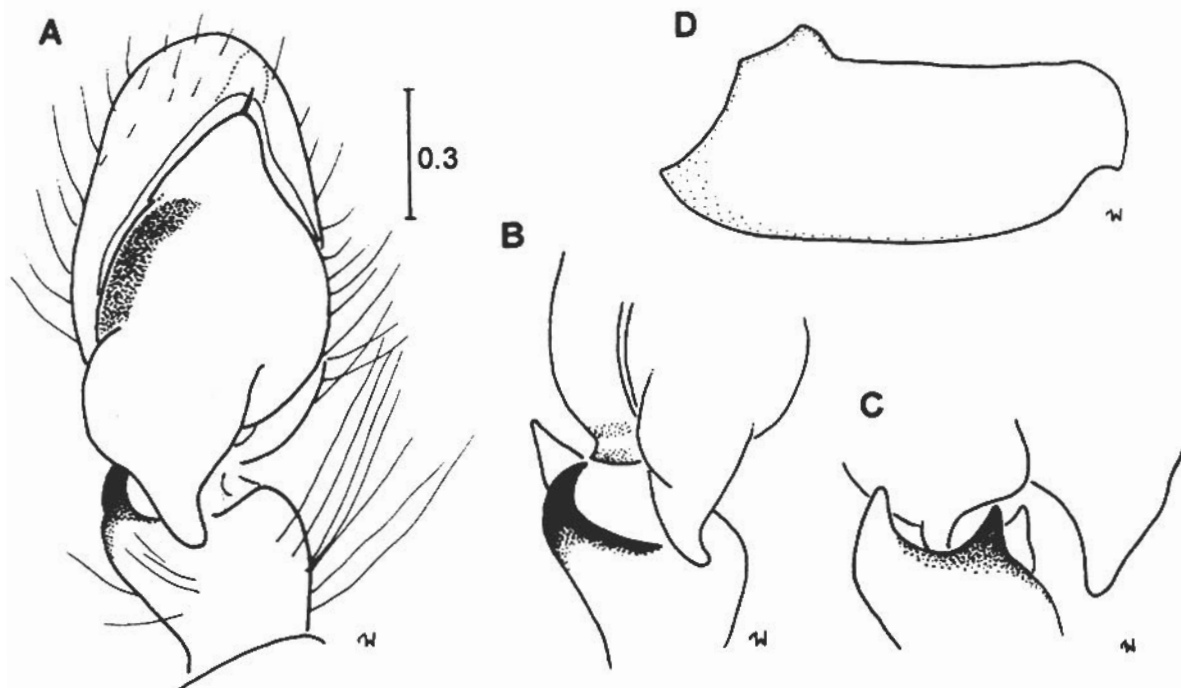


Fig. 5. *Aelurillus kopetdaghi* sp.n., paratype: A — male palp, ventral view; B, C — tibial apophysis; D — palpal femur.

Рис. 5. *Aelurillus kopetdaghi* sp.n., паратип: А — палепа самца, вентрально; В, С — отросток голени; D — бедро палепы.

[1994]. A subsequent revision [Logunov, personal observations] of the specimens determined by Nenilin as *E. afghana* (♀♀ only) has showed that they actually belong to *Plexippoides flavescens* (O. Pickard-Cambridge, 1872). So *Menemerops afghanus* should be ejected from the list of Turkmenian salticids. Moreover, the validity of *Plexippoides arabicus* appears to be questionable as well. Judged at least from Prószyński's [1976] figures 427-431, *P. arabicus* may turn out to be a junior synonym of *P. starmuehlneri* (Roewer, 1955), described from Iran and also reported from Oasis Murgab, Turkmenistan [Prószyński, 1976; Nenilin, 1984a, 1985; Mikhailov & Fet, 1994].

6. *Pellenes epularis* (O. Pickard-Cambridge, 1872). Reported by Mikhailov & Fet [1994] as based on a

personal communication of A.B. Nenilin. However, these data are absent from both Nenilin's [1984a, 1985] catalogues. Thus, the occurrence of *P. epularis* in Turkmenistan requires further confirmation upon pertinent material. At the moment, *P. epularis* is known from the Levant only [Prószyński, 1990].

7. *Pellenes limbatus* Kulczynski, 1895. Recorded by Ovtsharenko & Fet [1980], Nenilin [1984a] and after that listed by Mikhailov & Fet [1994] from Ashkhabad and Badkhyz. Beyond doubt, all those records are based on the erroneous synonymy of *Evarcha albopilosa* Tyshchenko, 1965, with *P. limbatus* proposed by Prószyński [1979, 1990]. However, a restudy of the types of *E. albopilosa* by Logunov [personal communication] has proved that both species are separate. Thus, to recognize

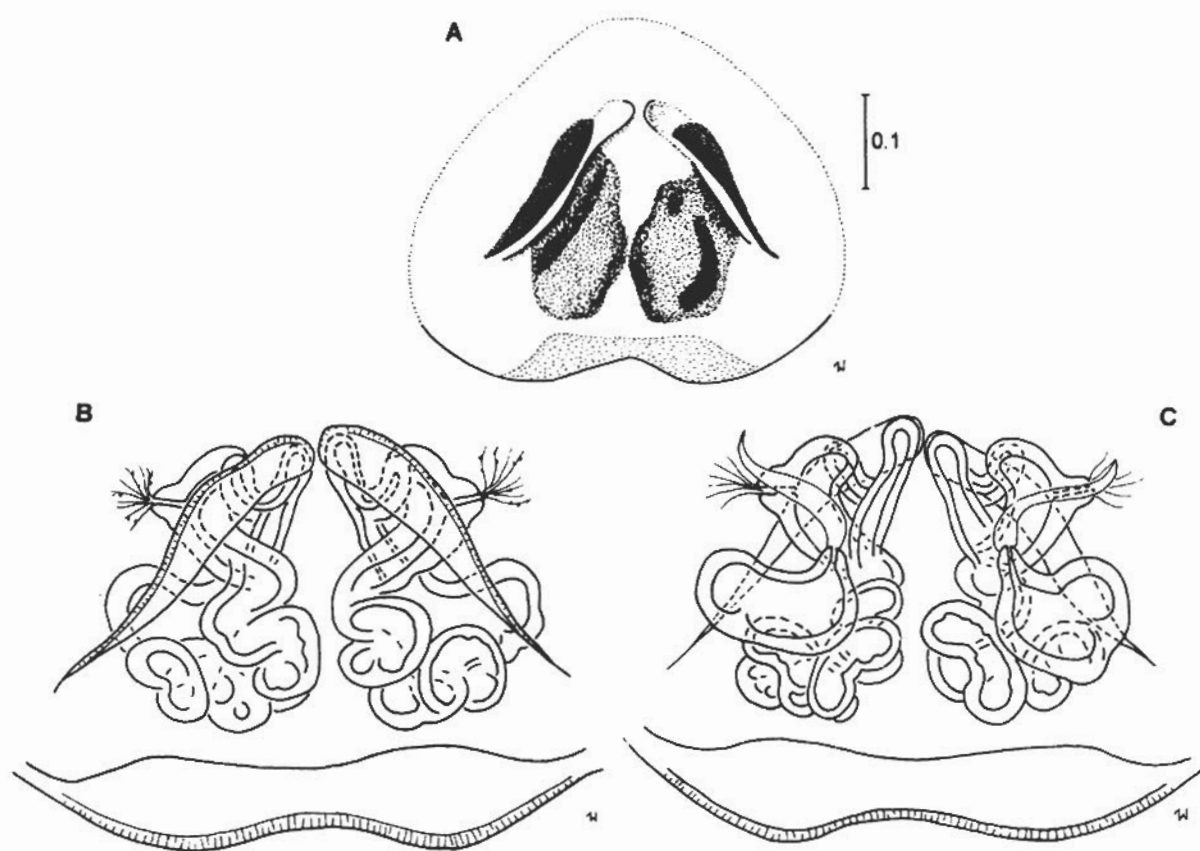


Fig. 6. *Aelurillus kopetdaghi* sp.n., allotype: A — epigyne; B, C — spermathecae, ventral and dorsal views.

Рис. 6. *Aelurillus kopetdaghi* sp.n., аллотип: А — эпигина; В, С — сперматека вентрально и дорсально.

which species is known from Turkmenistan under the name "*Pellenes limbatus*", it is necessary to restudy the specimens quoted in the above works.

8. *Pellenes tripunctatus* (Walckenaer, 1802). Reported by Fet [1983] and Nenilin [1984a, 1985] from the SW Kopetdagh. It has been shown recently that all Middle Asian records of this species belong in fact to *P. seriatus* (Thorell, 1875) [cf. Logunov & Marusik, 1994].

9. *Phlegra sogdiana* Charitonov, 1946. Reported by Mikhailov & Fet [1994] from the Kuhitang-Tau and SW Kopetdagh. At least the records from the SW Kopetdagh have been recognized recently [Logunov, in press] to belong to a new species.

10. *Sitticus caricis* (Westring, 1861). Reported by Mikhailov & Fet [1994] from Farab. As it has been found out recently [Logunov, personal communication], all Middle Asian records of *S. caricis* [cf. Nenilin, 1984a, 1985] actually belong to a new species. Hence, *S. caricis* must be ejected from the list of Turkmenian salticids.

11. *Sitticus distinguendus* (Simon, 1868). Reported by Nenilin [1984a] and Mikhailov & Fet [1994] from Krasnovodsk, the central Kopetdagh and Repetek. Most probably, these records belong to *S. avocator* (O. Pickard-Cambridge, 1885), a species widespread in the Asian

Palaearctic [Proszynski, 1983]. As far as currently known, *S. distinguendus* ranges from Western Europe to the West Sayan Mts, between 50 to 60-65°N [cf. Prószyński, 1983; Logunov, 1992b]. Thus Turkmenistan seems to lie beyond the range of this species.

12. *Sitticus terebratus* (Clerck, 1757). Reported by Nenilin [1984a] and Mikhailov & Fet [1994] with reference to Prószyński [1962], who had simply mentioned this species as occurring in Turkmenistan without exact locality. Beyond any doubt, these data can be considered erroneous, as the modern and precise data on the distribution of *S. terebratus* [e.g. Prószyński, 1976, 1983] clearly show that the southern border of its range is delimited by N-Kazakhstan. The record from the Caucasus by Dunin [1989] seems to be correct as well. Thus, *S. terebratus* must be ejected from the list of Turkmenian salticids as well.

Taxonomic part

Aelurillus concolor Kulczyński, 1901

Figs 2-3.

Material: Krasnovodsk Area, Chilmedkum Sands [2], 1 ♂, IX.1985, leg. E. Khachikov (ZMMU), 1 ♀, V.1985 (ZIP); S-Ustyurt,

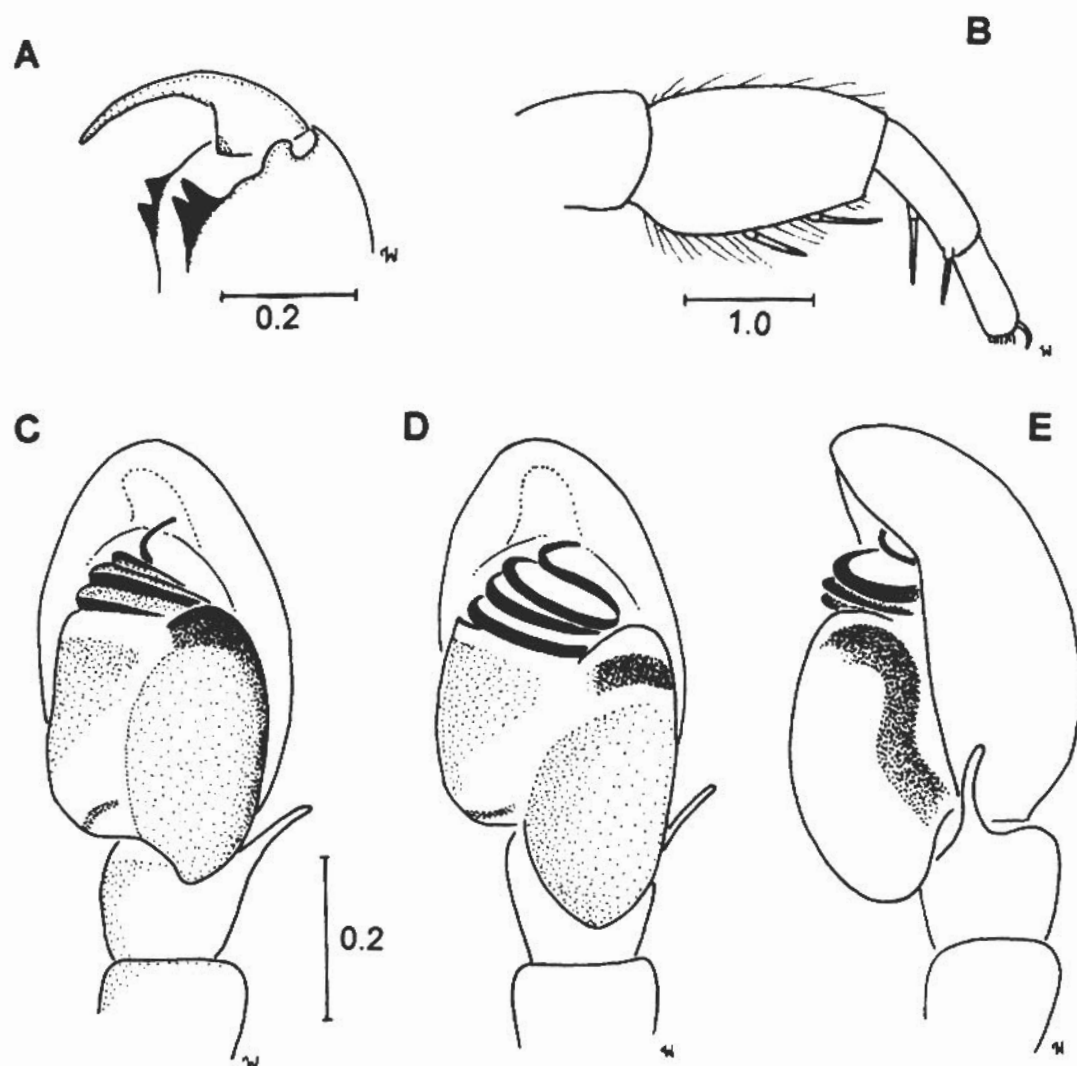


Fig. 7. *Ballus depressus* (Walckenaer, 1802): A — male chelicera; B — first leg of male; C-E — male palp, ventral, ventro-apical and lateral views.

Рис. 7. *Ballus depressus* (Walckenaer, 1802): А — хелицера самца; В — первая нога самца; С-Е — пальпа самца, вентрально, вентроапикально и латерально.

Kaplankyrskii Reserve [3], desert, 1 ♂, 13.V.1985, leg. L. Mitroshina (ZIP), 1 ♂, 20.V.1985 (ZIP), 1 ♀, 6.VI.1986 (ZIP), 2 ♂♂, 1 ♀, 21.V.1987 (ZIP).

Redescription: Measurements (male/female): length of carapace (in mm) 2.8-2.9/3.1-3.4, width of carapace 2.0-2.1/2.4-2.6, height of carapace 1.0/1.1, length of abdomen 2.4-2.7/3.3-4.9, width of abdomen 1.7-1.9/2.7-3.9, length of eye field 1.0/1.1-1.2, anterior and posterior width of eye field 1.4/1.6.

Male. Carapace elongated, broadened posteriorly, broadest at 2/3 length. Eye field very short. Coloration of carapace dark brown. Short, adherent, white hairs covering the carapace, long brown bristles near eyes. Clypeus low, dark with a few white hairs. Chelicerae dark brown, two small teeth at prolateral edge and a single, very small, retromarginal tooth. Labium and maxillae brown with paler margins, sternum brown with white hairs. Abdomen dark brown, covered with short, adherent, white hairs, longer at anterior margin. Abdomen

ventrally yellowish-grey with dense, light, flattened hairs. Spinnerets grey. Legs orange, rather without patches, hairs long, light and brown, spines numerous, light. Pedipalps yellowish with dark brownish cymbium and bulbus. Palpal structure as in Fig. 2A-C. Femur without process, yellow with a brown base. Tibial apophyses wide, clothed with very long, dense, white hairs. Tip of cymbium covered with dense grey hairs.

Female. Bigger than male. Carapace broadened posteriorly, with a short eye field, dark brown, covered with adherent greyish-white hairs, on eye field long brown bristles. Clypeus with dense white hairs. Chelicerae, labium and maxillae as in male. Sternum brown with white hairs. Abdomen elongated, yellowish-grey, clothed with adherent, very dense, flattened, greyish hairs interspersed with sparse brown bristles. Small, binate, brown spots composing a poorly visible pattern. Abdomen yellowish ventrally, spinnerets yellowish-grey. Legs orange with irregular brown patches. Leg hairs long, brown

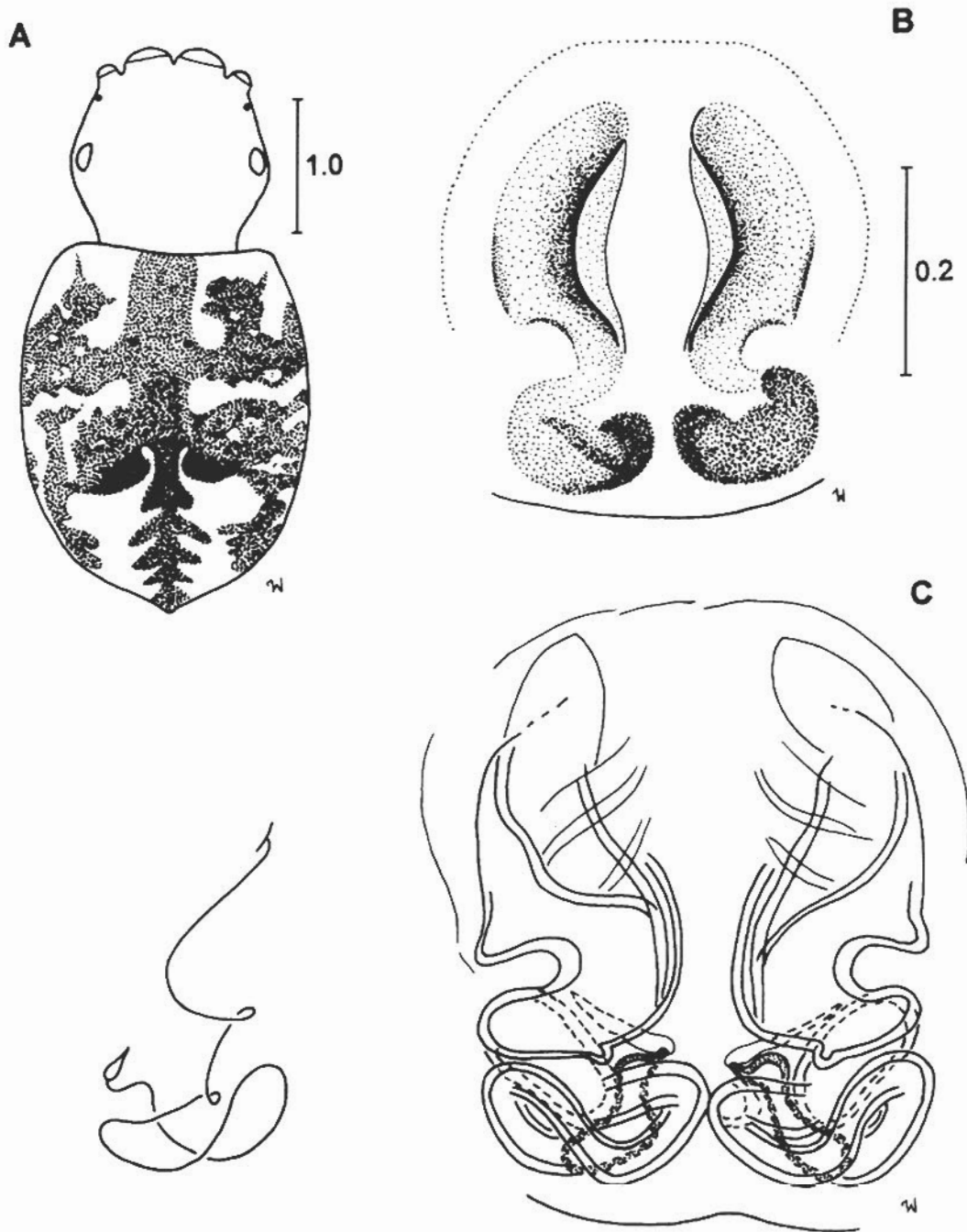


Fig. 8. *Ballus depressus* (Walckenaer, 1802): A — general appearance of female; B — epigyne; C — spermathecae.
Рис. 8. *Ballus depressus* (Walckenaer, 1802): A — самка, общий вид; B — эпигина; C — сперматека.

and light, spines long, light. Pedipalps yellow. Epigyne rather big, very wide (Fig. 3A). Internal structure as in Fig. 3B,C.

Diagnosis: A species related to *A. faragallai* Prószyński, 1993, described recently from Saudi Arabia [Prószyński, 1993], both species differing mainly in the coloration of leg I, abdomen and tegulum. To make a more clear-cut diagnosis, it is necessary to restudy Prószyński's specimens, a task for a future undertaking.

Distribution: This species has been described from the Caucasus, environs of Tbilisi [Kulczyński, 1901], then

repeatedly reported from Turkmenistan and Kirghizstan [Alekscev et al., 1977; Fet, 1983; Nenilin, 1984ab (sub *Aelurillus* i.), 1985; Mikhailov & Fet, 1994], as well as from Iran [Roewer, 1955 (sub *Hemsellatus iranus*); Prószyński, 1966 (sub *Aelurillus* i.)].

Aelurillus brutus sp.n.

Fig. 4.

Material: S-Ustyurt, Kaplankyrskii Reserve [3], 1 ♀ (holotype), 2.IV.1985, leg. L. Mitroshina (ZIP).

Diagnosis: This species is related to the congeners of

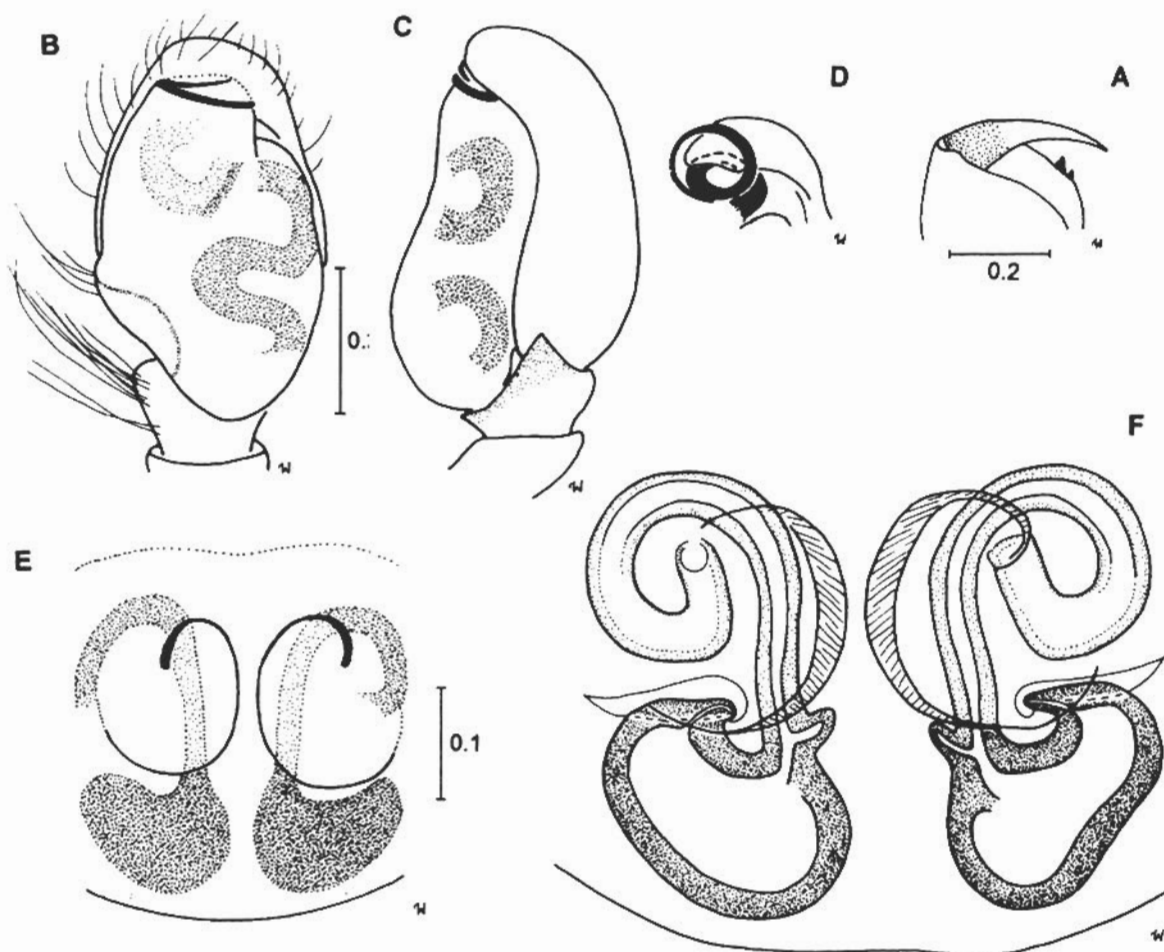


Fig. 9. *Chalcoscirtus karakurt* Marusik, 1991: A — male chelicera; B, C — male palp, ventral and lateral views; D — embolus, apical view; E — epigyne; F — spermathecae.

Рис. 9. *Chalcoscirtus karakurt* Marusik, 1991: A — хелицера самца; B, C — пальпа самца вентрально и латерально; D — эмболюс спереди; E — эпигина; F — сперматека.

the *v-insignitus*-group, being most close to *A. helvenacius* Logunov, 1993, from Mongolia [Logunov, 1993b]. *A. brutus* can be easily distinguished by the structure of the epigynal flaps and the spermathecae (cf. Fig. 4 and Fig. 1A,B in Logunov [1993b]).

Description: Measurements: length of carapace 3.1, width of carapace 2.0, height of carapace 1.0, length of abdomen 4.7, width of abdomen 3.2, length of eye field 1.0, anterior and posterior width of eye field 1.5.

Male unknown.

Female. Carapace rather high, elongated, broadened posteriorly. A short eye field occupying about 1/3 length. Carapace dark brown, almost black, very densely covered with short, adherent, white hairs, near eyes long brown bristles. Clypeus with a few white hairs. Chelicerae brown, labium and maxillae brown with large pale margins, sternum black with white hairs. Abdomen elongated, bulged, pointed posteriorly, yellowish-grey, covered with dense, adherent, flattened, yellowish-grey hairs interspersed with sparse brown bristles. Abdomen light ventrally, spinnerets yellowish-grey. Legs yellowish-orange with irregular brown patches. Leg hairs long,

brown and light. Pedipalps yellow. Epigyne oval with a big single pocket near epigastric furrow, two rifted openings centrally (Fig. 4A). Internal structure of epigyne as in Fig. 4B, accessory glands well-visible.

Aelurillus kopetdaghi sp.n.

Figs 5-6.

Material: SW-Kopetdagh Mts, Monzhukly [11], 1,000 m a.s.l., 1 ♂ (holotype), 3-17.V.1985, leg. T. Lukarevskaya (ZIP); Kara Kala [9], 1 ♂ (paratype), 15-21.VI.1985 (ZIP); Peredovoi Ridge [10], 800 m a.s.l., 1 ♀ (paratype), 20.VI.1985 (ZIP) [association of the male with the female uncertain].

Diagnosis: This species can be separated by the structure of the copulatory organs. The shape of the epigyne is similar to that of both *A. v-insignitus* (C.L. Koch, 1834), form "black" [cf. Prószyński, 1971: figs 12-14, 22], and *A. affinis* (Lucas, 1846) [cf. Prószyński, 1976: figs 323-325], but the internal structure is different and rather more complicated.

Description: Measurements (male/female): length of carapace 3.4/3.5, width of carapace 2.1/2.3, height of carapace 1.2/1.3, length of abdomen 3.2/4.1, width

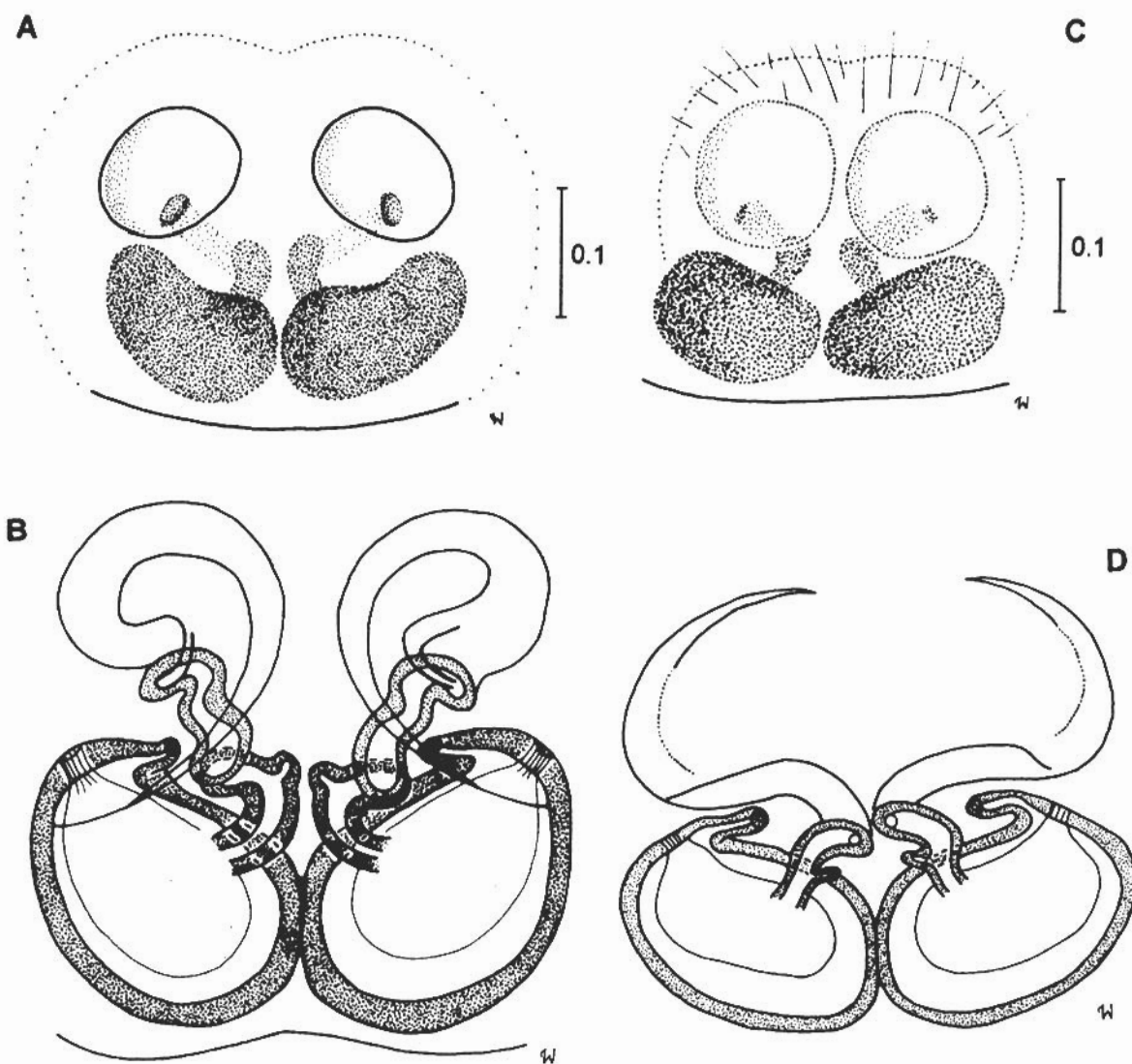


Fig. 10. *Chalcoscirtus lepidus* sp.n., paratype (A, B), and *Chalcoscirtus pauper* sp.n., paratype (C, D): A, C — epigyne; B, D — spermathecae.

Рис. 10. *Chalcoscirtus lepidus* sp.n., паратип (А, В), и *Chalcoscirtus pauper* sp.n., паратип (С, D): А, С — эпигина; В, D — сперматека.

of abdomen 2.4/3.1, length of eye field 1.2/1.2, anterior and posterior width of eye field 1.7/1.7.

Male. Carapace almost black with numerous, long, brown bristles, especially dense on eye field. Chelicerae brown with two small teeth at promargin and one very small tooth at retromarginal edge. Labium and maxillae brown, sternum black. Abdomen elongated, dark brown with dense, long, brown hairs. Abdomen dark ventrally. Anterior spinnerets dark, posterior light. Legs orange, covered very densely with dark hairs, on femora hairs dark and light. Spines long, light brown. Pedipalps brown with long, brown and light grey hairs. Palpal structure as in Fig. 5A-C. Femur with a protuberance on ventral surface near its apical end (Fig. 5D).

Female. Carapace rather high, dark brown with a darker eye field. Short, adherent, grey hairs on carapace, long brown bristles near eyes. Chelicerae as in male.

Labium and maxillae brown, sternum yellowish-orange. Abdomen rounded, pointed posteriorly. Its coloration dark brown with adherent golden and dense, long, brown hairs. Abdomen light ventrally, spinnerets grey. Legs orange-brownish with irregular darker patches. Leg hairs long, brown, spines long, light brown. Pedipalps orange. Epigyne rounded with two diagonal rifted openings (Fig. 6A). Internal structure as in Fig. 6B-C, accessory glands well-visible.

Ballus depressus (Walckenaer, 1802)

Figs 7-8.

Material: SW-Kopetdagh Mts, Aidere [12], 2 ♂♂, 27.V-3.VI.1979, leg. B. Zakharov (ISE); Eldere [9], 1 ♀, 1.VI.1982, leg. B. Zakharov (ISE).

Distribution: A Euro-Middle Asian species known from SW Europe in the west [Prószyński, 1976 (sub *B.*

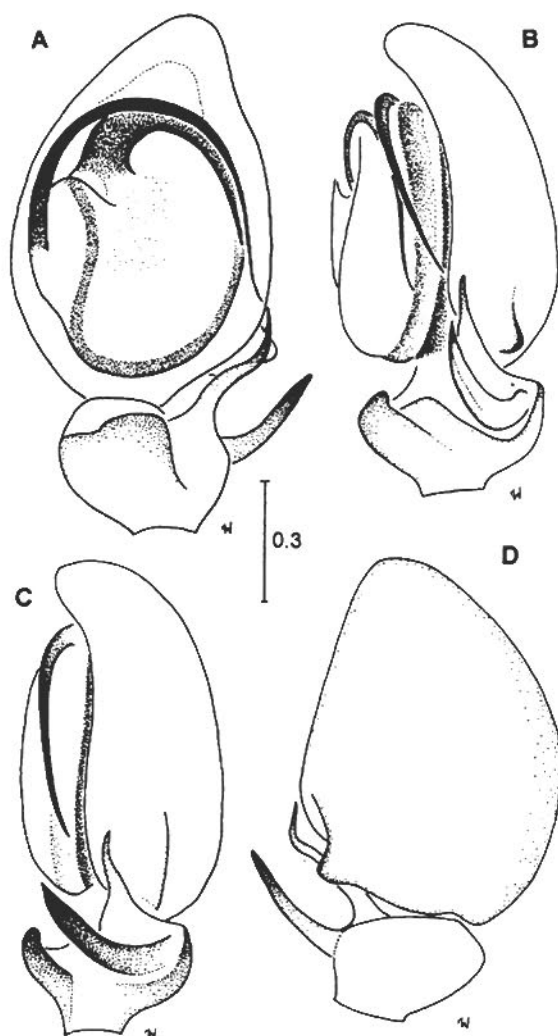


Fig. 11. *Cyrba algerina* (Lucas, 1846): A-D — male palp, ventral, two lateral and a dorsal view.

Рис. 11. *Cyrba algerina* (Lucas, 1846): A-D — палепа самца, вентрально, дважды латерально и дорсально.

chalybeus); Alicata & Cantarella, 1987] throughout the Caucasus [e.g., Dunin, 1989] and Uzbekistan, up to Tajikistan in the east [Kharitonov, 1969]. Previously recorded from Turkmenistan as *B. chalybeus* (Walckenaer, 1802) by Fet [1983], Nenilin [1985] and Mikhailov & Fet [1994]. Prószyński [1990] has reported this species also from North Africa, but no exact locality has been published.

Chalcoscirtus infimus (Simon, 1868)

Material: SW-Kopetdagh Mts, Khodzhakala [10], 300 m a.s.l., 1 ♂, V.1981, leg. N. Ermakov (ZMMU).

Distribution: The species is distributed in S-Europe, N-Africa, the Near East [Prószyński, 1976] and Middle Asia [Kuznetsov & Fet, 1986; Nenilin, 1985], with the westernmost record in Macaronesia [Wunderlich, 1991] and the easternmost one in Kirghizstan [Marusik, 1990].

Chalcoscirtus karakurt Marusik, 1991

Fig. 9.

Chalcoscirtus martensi parvulus Marusik, 1991 (part: ♀). Material: Chardzhou Area, Amudaryinskii Reserve, Kabakly [6], 2 ♂♂, 8.V.1987, leg. F. Zeleev (ZIP); Krasnovodsk Area, Chilmamedkum Sands [2], 2 ♂♂, 1 ♀, V.1987, leg. E. Khachikov (ZIP).

Redescription: Measurements (male/female): length of carapace 1.4-1.5/1.4, length of abdomen 1.4-1.5/1.6, length of eye field 0.5/0.6, anterior and posterior width of eye field 0.7-0.8/0.8.

Male. Very small. Carapace dark brown, eye field short, black. A few thin hairs near eyes. Abdomen oval with a distinct scutum, dark brown. Abdomen greyish-brown ventrally. Whole body with metallic blue lustre dorsally. Chelicerae dark brown with two small teeth at promargin (Fig. 9A). Labium, maxillae and sternum brown. Legs yellowish-grey with brown femora and patellae. Pedipalps brown. Tibial apophysis short, wide at base (Fig. 9C). A characteristic spiralling and coiled embolus placed perpendicular at tip of bulbus (Fig. 9B & D).

Female. Coloration like in male. Epigyne as in Fig. 9E. Seminal ducts very long, poorly sclerotized (Fig. 9F).

Distribution: This species has been described from E-Kazakhstan [Marusik, 1991a] and also reported in the same work from Turkmenistan (SW Kopetdagh), S-Kazakhstan and Kirghizstan as *C. martensi parvulus* (♀ only). Recently, Mikhailov & Fet [1994] have listed this species as *C. m. parvus* (lapsus!).

Chalcoscirtus lepidus sp.n.

Fig. 10 A,B.

Material: Krasnovodsk Area, Chilmamedkum Sands [2], 1 ♀ (holotype), 1 ♀ (paratype, with removed epigyne), V.1987, leg. E. Khachikov (ZIP).

Diagnosis: This species is most closely related to *C. infimus* (Simon, 1868) [cf. Prószyński, 1976: fig. 355], but it can be distinguished by the position of the seminal ducts.

Description: Measurements: length of carapace 1.1-1.2, width of carapace 0.8, height of carapace 0.4, length of abdomen 2.1-2.2, width of abdomen 1.3, length of eye field 0.4-0.5, anterior and posterior width of eye field 0.7.

Female. Small. Carapace fawn-brown, eye field short, almost black, with blue metallic lustre. Sparse, delicate, white hairs on eye field. Chelicerae brown with two small teeth at promargin, without retromarginal tooth. Abdomen elongated, yellow with three, parallel, narrow, light brown stripes along its extent. Spinnerets yellowish. Legs yellow. Epigyne with two rounded openings, very poorly visible (Fig. 10A). Seminal ducts rather strongly twisted, accessory glands present (Fig. 10B).

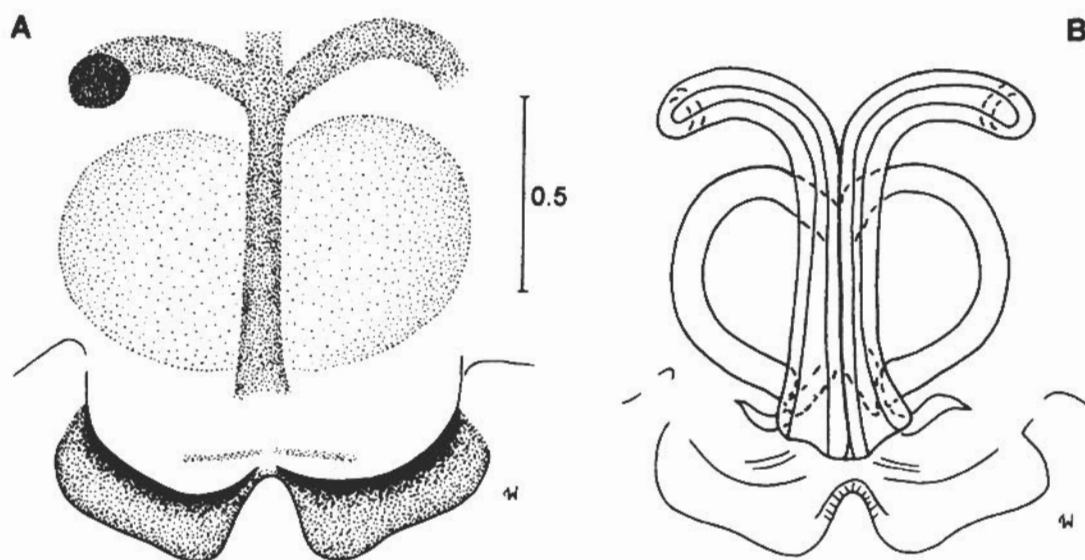
Male unknown.

Chalcoscirtus pauper sp.n.

Fig. 10C,D.

Material: SW-Kopetdagh Mts, Monzhukly [11], 1,000 m a.s.l., 1 ♀ (holotype), 3-17.V.1985, leg. T. Lukarevskaya (ZIP).

Diagnosis: This species is closely related to *C. kamchik* Marusik, 1991, but differs in the structure of the seminal ducts and the monochrome body [cf. Marusik, 1991b: figs 7-10].

Fig. 12. *Cyrba algerina* (Lucas, 1846): A — epigyne; B — spermathecae.Рис. 12. *Cyrba algerina* (Lucas, 1846): A — эпигина; B — сперматека.

Description: Measurements: length of carapace 1.4, width of carapace 1.0, height of carapace 0.6, length of abdomen 1.7, width of abdomen 1.2, length of eye field 0.5, anterior and posterior width of eye field 0.8.

Female. Small. Carapace dark brown, eye field short, black. Carapace with distinct, blue, metallic lustre. Chelicerae brown with two small promarginal teeth. Labium, maxillae and sternum brown. Abdomen blackish, ventrally also dark. Sparse hairs on carapace and abdomen. Spinnerets dark. Legs yellowish-orange. Epigyne poorly sclerotized, with two rounded depressions, very poorly visible (Fig. 10C). Internal structure as in Fig. 10D.

Male unknown.

Cyrba algerina (Lucas, 1846)

Figs 11-12.

Material: SW-Kopetdagh Mts, Aidere [12], under stones, 3 ♂♂, 4 ♀♀, 8.V.1979, leg. V. Fet (ZIP).

Redescription: Measurements (male/female): length of carapace 2.3/2.3-2.4, width of carapace 1.5/1.5-1.6, height of carapace 1.0/1.0-1.1, length of abdomen 2.5-2.7/2.9-3.3, width of abdomen 1.3-1.5/1.7-1.9, length of eye field 0.9-1.0/0.9-1.0, anterior width of eye field 1.3-1.5/1.3-1.6, posterior width of eye field 1.2-1.3/1.2-1.5.

Male. Carapace oval, rather high with a distinct fovea. Coloration of carapace brown, eye field a little darker, near eyes black. Brown bristles and rusty scales near eyes; adherent, short, white hairs on thoracic part of carapace. Chelicerae brown, promargin with three teeth, retromargin with three very small teeth. Labium and maxillae brown, with paler margins. Sternum brown. Abdomen elongated, dark brown, posteriorly with traces of transverse lighter stripes. Abdomen dark ventrally, only on sides with a yellowish line composed of dots. Anterior spinnerets brown, posterior ones yellow. Legs brown, spines and hairs brown, only on femora hairs

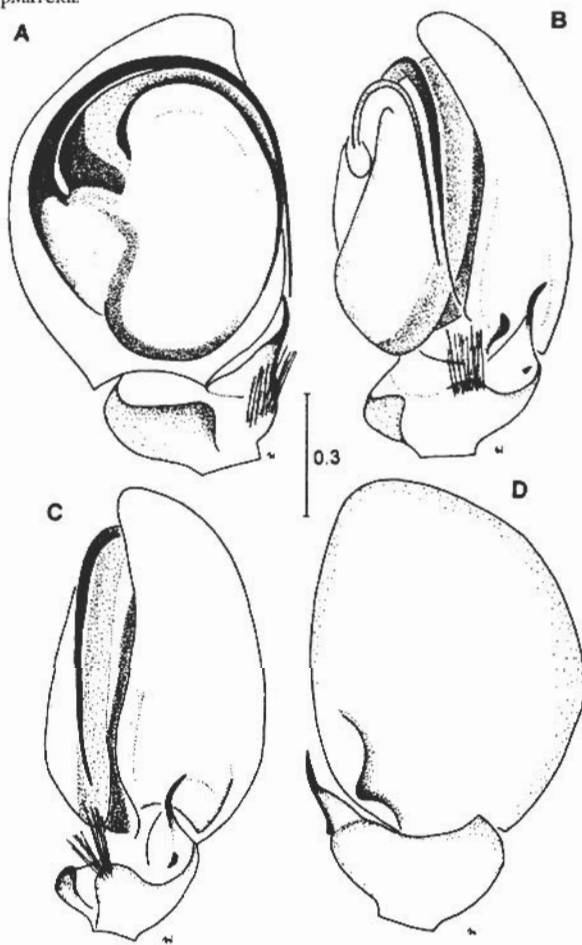
Fig. 13. *Cyrba ocellata* (Kroneberg, 1875): A-D — male palp, ventral, two lateral and a dorsal view.

Рис. 13. *Cyrba ocellata* (Kroneberg, 1875): A-D — палепа самца, вентрально, дважды латерально и дорсально.

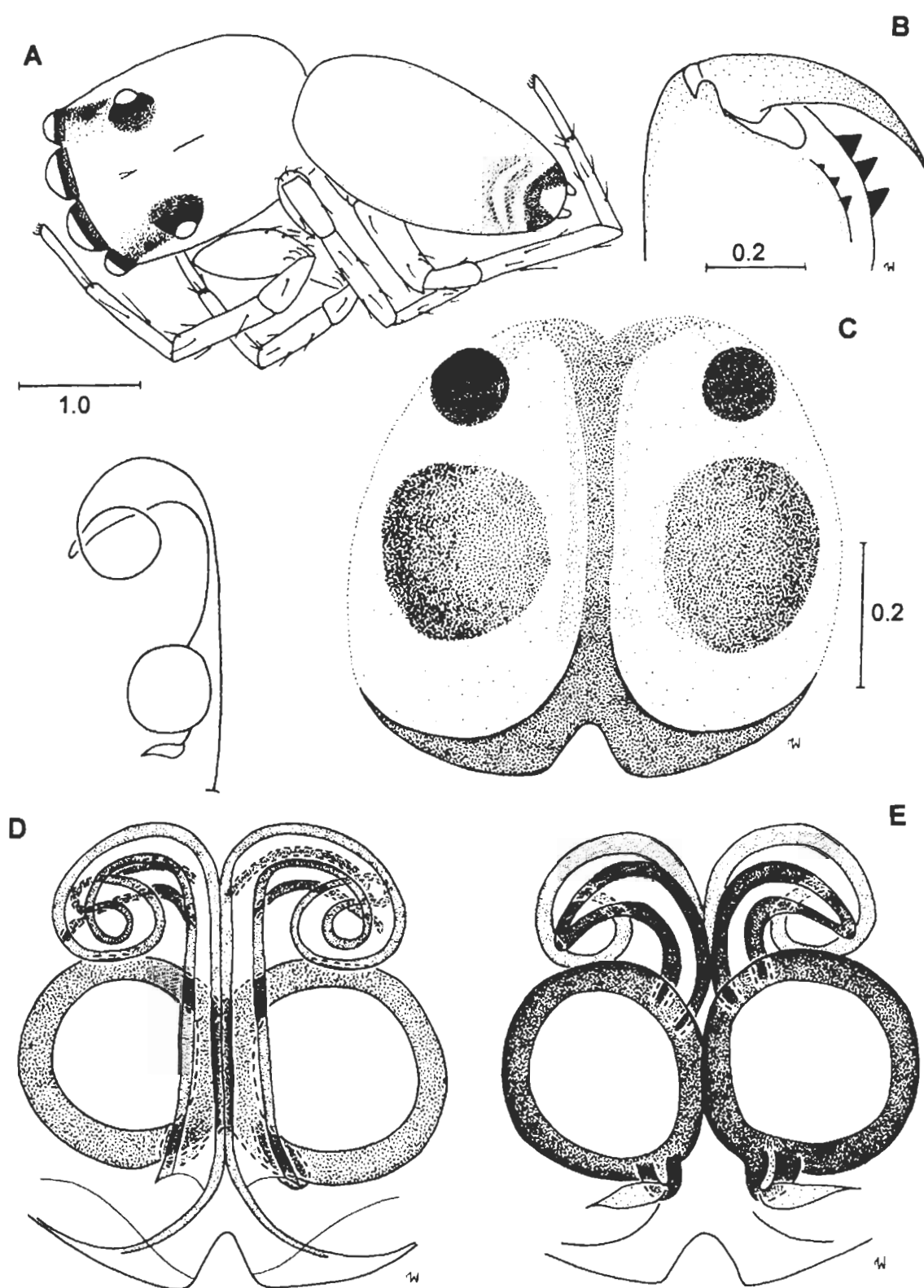


Fig. 14. *Cyrba ocellata* (Kroneberg, 1875): A — general appearance of male; B — male chelicera; C — epigyne; D, E — spermathecae, ventral and dorsal views.

Рис. 14. *Cyrba ocellata* (Kroneberg, 1875): A — самец, общий вид; B — хелицера самца; C — эпигина; D, E — сперматека, вентрально и дорсально.

brown and white. Pedipalps brown, with two long tibial apophyses (Fig. 11A-D).

Female. Like male, but coloration lighter. Thoracic part of carapace light brown or orange. Legs yellowish-brown with darker rings. Five small teeth at retromarginal edge of chelicerae. Epigyne with a very strongly sclerotized plate in its posterior part (Fig. 12A). Internal structure as in Fig. 12B. Seminal ducts long, their course rather straight.

Distribution: This species is widespread in the Mediterranean region, E-Africa, the Near East, Central and SE-Asia [Wanless, 1984].

Cyrbia ocellata (Kroneberg, 1875)

Figs 13-14.

Material: Bolshoy Balkhan Mts, Sakka [4], under stones, 1 ♂, 2 ♀♀, 19.VI.1929, leg. V. Pereleshina (ZMMU); Chardzhou Area, Amudaryinskii Reserve, Farab [7], 1 ♂, 1 ♀, 10.VI.1987, leg. F. Zeleev (ZIP); Repetek [8], 1 ♂, 2 ♀♀, 22.IV.1993, leg. D. Logunov (ISE).

Redescription: Measurements (male/female): length of carapace 2.2/2.4, length of abdomen 2.1/2.9-3.7, length of eye field 0.9/1.0-1.1, anterior width of eye field 1.3/1.6-1.7, posterior width of eye field 1.2/1.4-1.5.

Male. General appearance as in Fig. 14A. Medium-sized. Carapace rather convex with a distinct fovea. Carapace brown, eyes surrounded by black. Brown bristles near eyes, whole carapace clothed with adherent grey hairs. Clypeus with whitish hairs. Chelicerae brown, promargin with three teeth, retromargin with three very small teeth (Fig. 14B). Labium, maxillae and sternum light brown. Abdomen elongated, narrower than carapace, anteriorly yellowish-grey, darker in posterior part, almost black, with a white patch near base of spinnerets. Posterior part of abdomen covered with dark hairs, at anterior margin a few long bristles. Abdomen yellowish ventrally, spinnerets dark. Legs yellowish-orange with darker femora, first pair light brown. Leg hairs long, brown; spines numerous, very long, brown. Pedipalps big. Single tibial apophysis with a thin end, a tuft of long bristles near base of the apophysis. Cymbium rather wide, with a process at retromarginal basal margin. Details of palpal structure as in Fig. 13A-D.

Female. Similar to male. Coloration of abdomen slightly lighter. Spinnerets yellowish-grey. Epigyne very large, more or less strongly rounded, its posterior part very heavily sclerotized (Fig. 14C). Gonopores situated in posterior part of epigyne, long seminal ducts in initial part straight, further on coiled, spermathecae large and spherical (Fig. 14D,E).

Distribution: *C. ocellata* is widely distributed in Central and SE-Asia, E-Africa and Australia [Prószyński, 1978 (sub *C. micans*); Wanless, 1984], with the records in Middle Asia [Kroneberg, 1875; Andreeva, 1976; Fet, 1983; Nenilin, 1984a, 1985; Kuznetsov & Fet, 1986] being the northernmost for the species.

Euophrys uralensis Logunov, Cutler et Marusik, 1993

Material: SW-Kopetdagh Mts, Palvanzar [9], 600 m a.s.l., arid slopes, 1 ♂, 24.IV-12.V.1985, leg. T. Lukarevskaya (ZIP); Sumbar

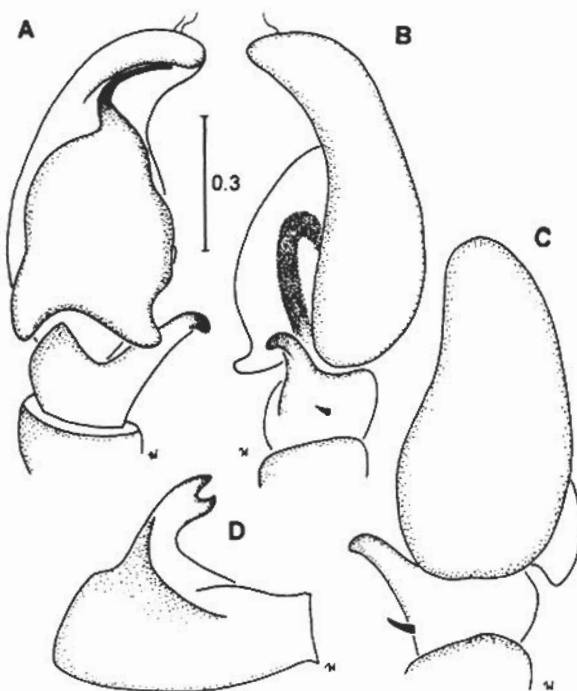


Fig. 15. *Heliophanus turanicus* Charitonov, 1969: A-C — male palp, ventral, lateral and dorsal views; D — palpal femur.

Рис. 15. *Heliophanus turanicus* Charitonov, 1969: A-C — палепа самца, вентрально, латерально и дорсально; D — бедро палепы.

River, 200 m a.s.l., moist valley forest with *Populus diversifolia*, 1 ♂, 23-30.IV.1985, leg. T. Lukarevskaya (ZIP).

Remarks: Most probably the records of *E. frontalis* in Turkmenistan [Mikhailov & Fet, 1994] belong in fact to *E. uralensis* as well. However, according to Logunov [personal communication], the validity of *E. uralensis* itself should be reconfirmed by a restudy of *E. pseudogambosa*, the latter described and known from Palestina [Strand, 1915].

Distribution: This species has lately been described from the E-Caucasus and the S-Ural Mts [Logunov et al., 1993].

Evarcha arcuata (Clerck, 1757)

Material: Chardzhou Area, Amudaryinskii Reserve, Kabakly [6], 1 ♀, 28.III.1987 (ZIP).

Distribution: A widely distributed trans-Eurasian temperate species. Previous records in Turkmenistan belong to Sabirova [1975], Fet [1983], Nenilin [1984a], and Mikhailov & Fet [1994].

Heliophanus curvidens (O. Pickard-Cambridge, 1872)

Material: Bolshoy Balkhan Mts, Sakka [4], under stones, 1 ♀, 19.VI.1929, leg. V. Pereleshina (ZMMU).

Distribution: A S-Palearctic species reported from Pakistan (Karakorum), Palestina, China (Gansu) [Wesołowska, 1982], Mongolia [Prószyński, 1982], S-Kazakhstan [Logunov, 1992a], and Turkmenistan [Mikhailov & Fet, 1994].

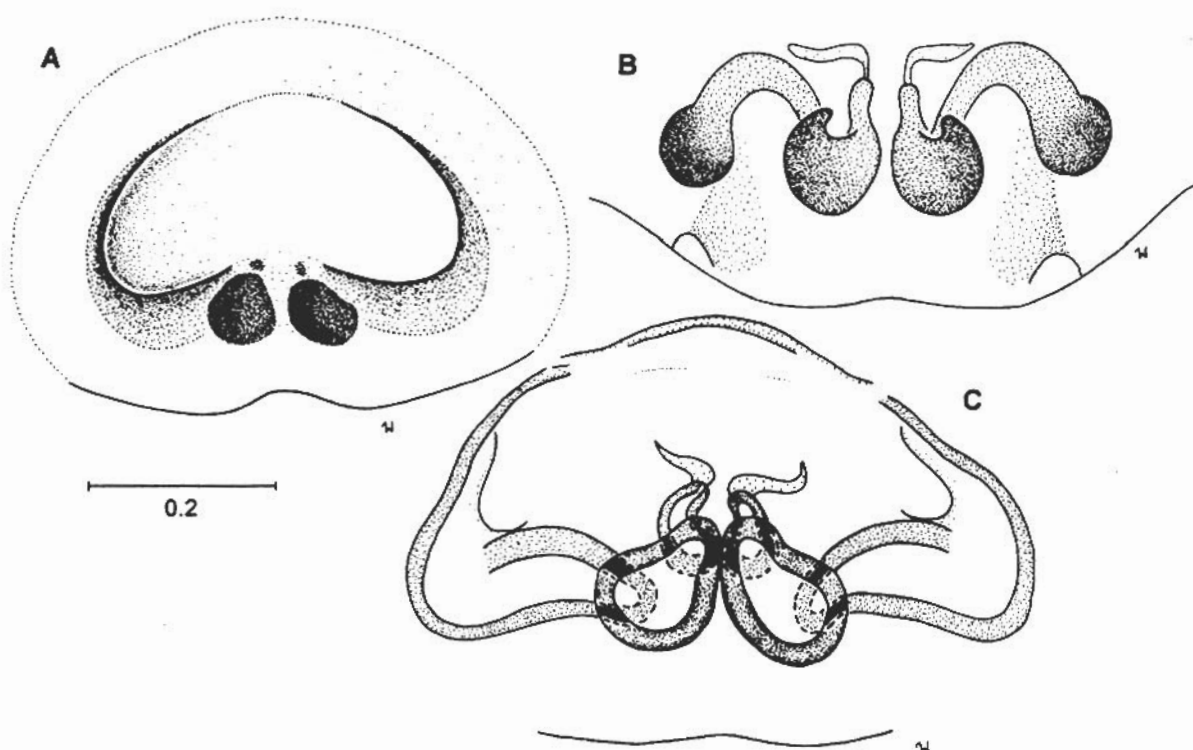


Fig. 16. *Heliophanus turanicus* Charitonov, 1969: A — epigyne; B — epigyne, caudal view; C — spermathecae.
Рис. 16. *Heliophanus turanicus* Charitonov, 1969: A — эпигина; B — то же сзади; C — сперматека.

Heliophanus mordax (O. Pickard-Cambridge, 1872)

Salticus mordax O. Pickard-Cambridge, 1872: 344.

Salticus dentatidens O. Pickard-Cambridge, 1872: 346.

Heliophanus m.: Kulczyński, 1911 (♂ only).

H. m.: Wesolowska, 1986: 10, 41, figs 476-486, map 895.

Heliophanus ignorabilis Wesolowska, 1986: 10, 214, f. 661-666, map 897. **Syn.n.!**

Material: C-Kopetdagh Mts, along Firyuzinka River [13], on grass, 1 ♂, 13.VI.1929, leg. V. Pereleshina (ZMMU); SW-Kopetdagh Mts, Parkhai [9], 400 m a.s.l., 3 ♀♀, 1.VI.1985, leg. T. Lukarevskaya (ZIP); Aidere [12], 1 ♀, V.1981, leg. V. Fet (ZIP); Monzhukly [11], 100 m a.s.l., 1 ♂, 3-17.V.1985, leg. T. Lukarevskaya (ZIP).

Remarks: *H. mordax* has been described and for a long time known from males only [Pickard-Cambridge, 1872], whereas *H. ignorabilis* has been described relatively recently from females [Wesolowska, 1986]. The newly collected specimens of both sexes from the SW-Kopetdagh show that both species are actually conspecific and have to be synonymized formally.

Distribution: This species is distributed from the Near East (Palestina and Syria), Turkey, Iran and Afghanistan to the Caucasus (Georgia) [Wesolowska, 1986] and Turkmenistan [above data]. New to the fauna of Turkmenistan!

Heliophanus turanicus Charitonov, 1969

Figs 15-16.

Material: Badkhyz Reserve, Kyzyl Dzhar [15], 3 ♂♂, 4 ♀♀, 1 juv., 10-12.IV.1993, leg. D. Logunov (ISE).

Redescription: Measurements (male/female): length of carapace 2.3-2.4/2.4-2.6, width of carapace 1.8-1.9/1.8, height of carapace 1.0-1.1/1.0, length of abdomen

2.6-2.9/2.8-3.9, width of abdomen 1.8-2.0/2.0-2.6, length of eye field 1.0/1.0, anterior width of eye field 1.1-1.2/1.2-1.3, posterior width of eye field 1.3/1.4.

Male. Medium-sized. Coloration black with metallic lustre. Legs brownish-black. Palpal organ as in Fig. 15A-D. Femoral apophysis bifurcate, dorsal tibial apophysis very short.

Female. Like male. A few white hairs at anterior abdominal margin. In some specimens, a pair of white dots in posterior part of abdomen dorsally. A pair of light patches on ventral abdominal surface near spinnerets. Epigyne heavily sclerotized, with a large, oval, central depression (Fig. 16A). Seminal ducts wide (Fig. 16C).

Diagnosis: This species belongs to the *cupreus*-group sensu Wesolowska [1986]. It is related to *H. lineiventris* Simon, 1869, but the male has a considerably shorter dorsal tibial apophysis, while females can be distinguished by the size and a different course of the seminal ducts.

Distribution: A poorly-known Turan deserticole first described from Uzbekistan [Kharitonov, 1969] and subsequently reported from S-Kazakhstan and Turkmenistan [Nenilin, 1984a; Mikhailov & Fet, 1994].

Langona tartarica (Charitonov, 1946)

Figs 17-18.

Material: SW-Kopetdagh Mts, Syunt [9], 1,200 m a.s.l., 1 ♂, 22.V.1985, leg. T. Lukarevskaya (ZIP), 1 ♂ (ZMMU); Kara Kala [9], 300 m a.s.l., 1 ♂, 24.V.1985 (ZIP); Chardzhou Area, Amudaryinskii Reserve, Farab [7], 1 ♂, 10.VI.1987, leg. F. Zeleev (ZIP); Kabakly [6], 1 ♀, 3-13.V.1987, leg. F. Zeleev (ZIP).

Distribution: This species is currently known only from Middle Asia [Kharitonov, 1946, 1969; Andreeva,

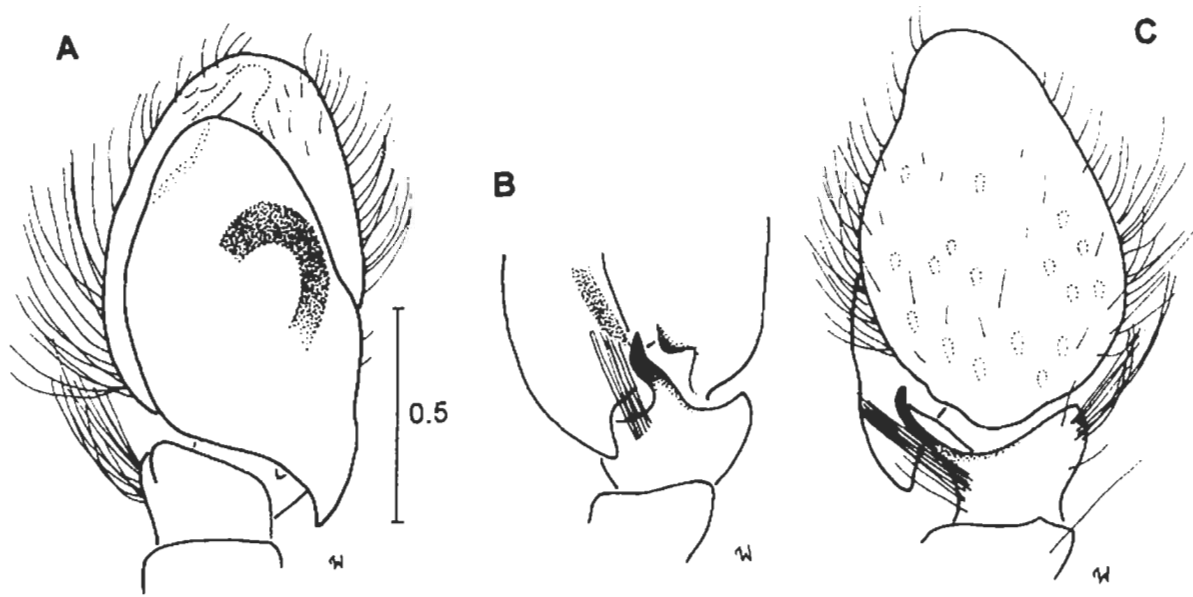


Fig. 17. *Langona tartarica* (Charitonov, 1946): A-C — male palp, ventral, lateral and dorsal views.

Рис. 17. *Langona tartarica* (Charitonov, 1946): A-C — пальца самца, вентрально, латерально и дорсально.

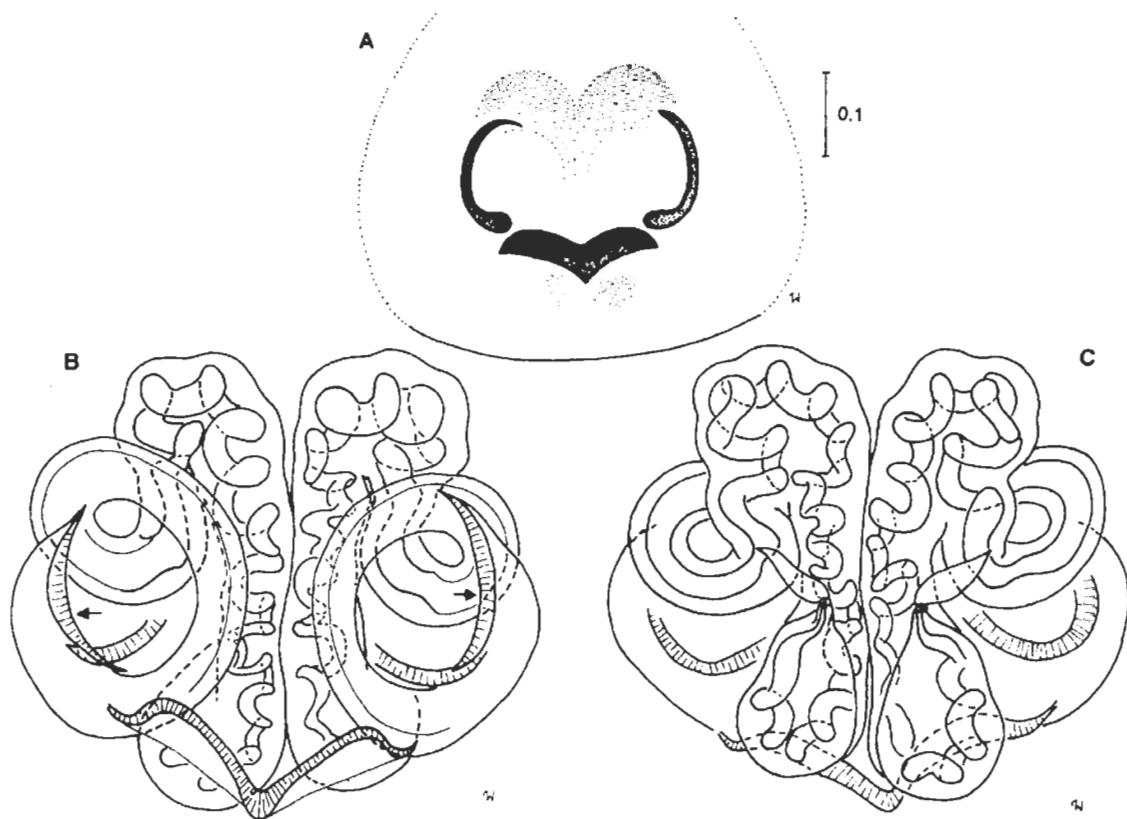


Fig. 18. *Langona tartarica* (Charitonov, 1946): A — epigyne; B, C — spermathecae, ventral and dorsal views.

Рис. 18. *Langona tartarica* (Charitonov, 1946): A — эпигина; B, C — сперматека вентрально и дорсально.

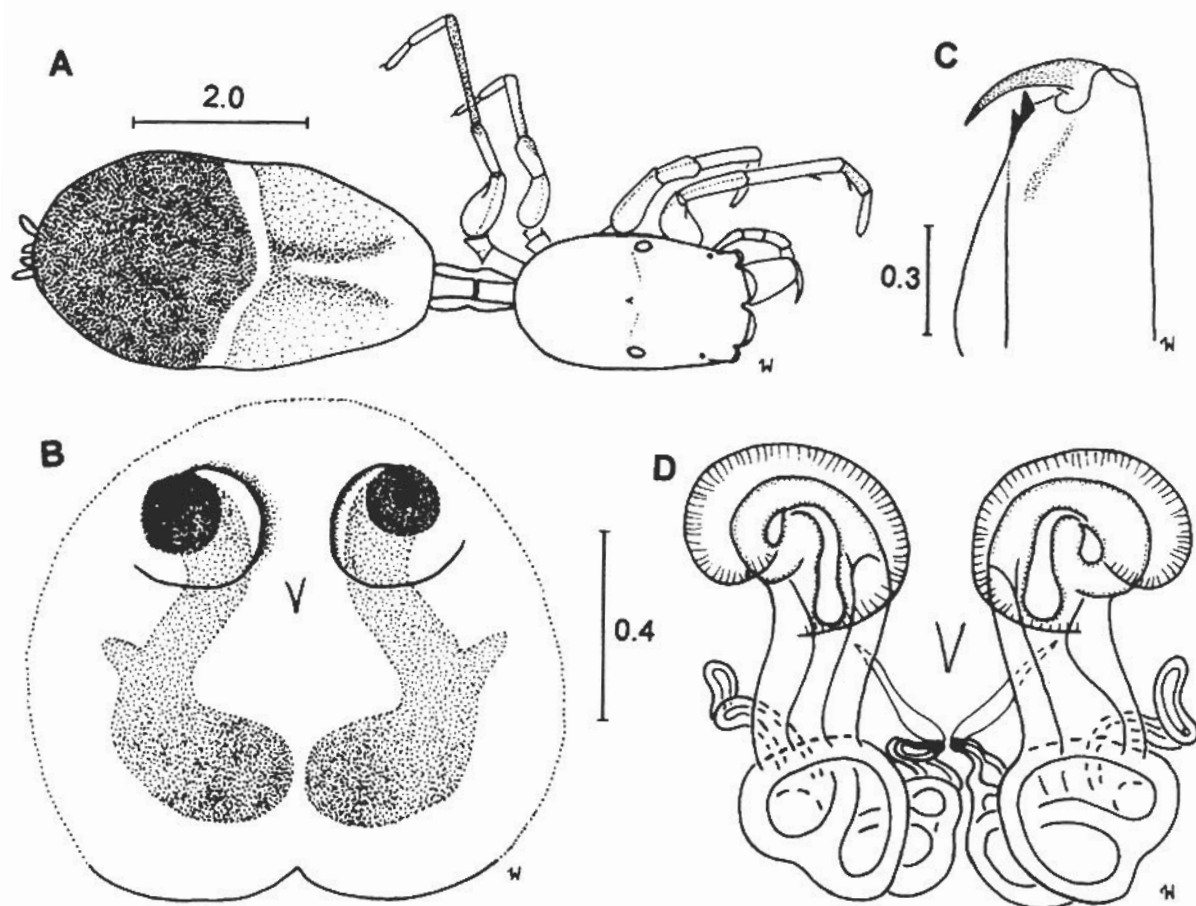


Fig. 19. *Leptorchestes berolinensis* (C.L. Koch, 1846): A — general appearance of female; B — female chelicera; C — epigyne; D — spermathecae.

Рис. 19. *Leptorchestes berolinensis* (C.L. Koch, 1846): A — самка, общий вид; B — хелицера самки; C — эпигина; D — сперматека.

1976; Hęciak & Prószyński, 1983; Kuznetsov & Fet, 1986; Mikhailov & Fet, 1994].

Leptorchestes berolinensis (C.L. Koch, 1846)

Fig. 19.

Material: SW-Kopetdag Mts, Aidere [12], 1 ♀, spring 1980, leg. V. Fet (ZMMU).

Redescription: Measurements: length of carapace 2.3, width of carapace 1.3, height of carapace 0.9, length of abdomen 4.0, width of abdomen 2.0, length of eye field 1.2, anterior width of eye field 1.0, posterior width of eye field 1.2.

Female. Ant-like. General appearance as in Fig. 19A. Carapace elongated, dark brown with lustre. Eye field black, very delicately punctate-reticulate. A few brown bristles near eyes. Chelicerae very long, dark brown (Fig. 19B). Labium and maxillae dark brown, with narrow light margins. Sternum very long, black. Pedicel long. Abdomen elongated, widest near its end. Anterior half of abdomen rather light, yellowish-grey; posterior part dark brown with a delicate scutum. A narrow furrow delimited by white hairs separating lighter and darker parts of abdomen. Abdomen rather brown ventrally, with a large, triangular, lighter patch behind epigyne and two patches in posterior part. Spinnerets brownish. Legs yellowish-brown, brown stripes along

femora, patellae and tibiae I and II. Palps brown. Anterior part of epigyne with two openings plugged with a waxy secretion (Fig. 19C). Internal structure of epigyne as in Fig. 19D.

Distribution: This species has been recorded in SW-Europe [Prószyński, 1990], Lebanon [Prószyński, 1992], the Caucasus [Dunin, 1989] and Turkmenistan [Fet, 1983; Nenilin, 1985; Mikhailov & Fet, 1994], with the SW-Kopetdag being the easternmost outpost of the range.

Macaroeris nidicolens (Walckenaer, 1802)

Material: SW-Kopetdag Mts, Eldere [9], 800 m a.s.l., humid forest with *Ulmus carpinifolia*, 1 ♂, 29.V.1985, leg. T. Lukarevskaya (ZIP).

Distribution: A SW-Palearctic species occurring from the Canary Islands and Madeira in the west [Wunderlich, 1991] to Turkmenistan (SW-Kopetdag) in the east [cf. Fet, 1983; and above].

Menemerus marginatus (Kroneberg, 1875)

Fig. 20.

Material: SW-Kopetdag Mts, Kara Kala [9], 1 ♀, V.1974, leg. V. Makeev (ZMMU); Chardzhou Area, Amudaryinskii Reserve [6], 1 ♀, 27.IV.1987, leg. F. Zeleev (ZIP); Badkhyz [15], on trunk

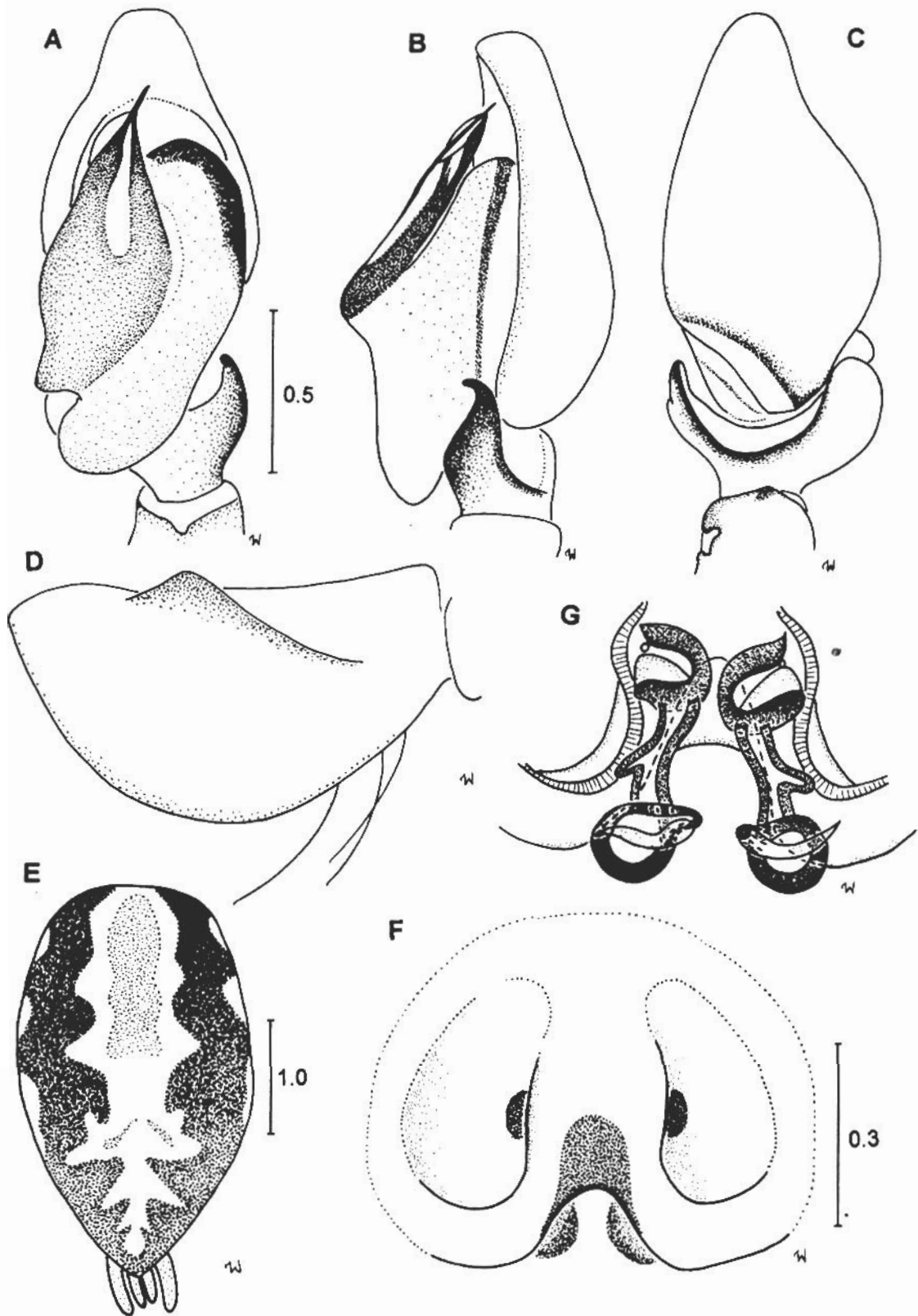


Fig. 20. *Menemerus marginatus* (Kroneberg, 1875): A-C — male palp, ventral, lateral and dorsal views; D — palpal femur; E — abdominal pattern of female; F — epigyne; G — spermathecae, dorsal view.

Рис. 20. *Menemerus marginatus* (Kroneberg, 1875): A-C — палепа самца, вентрально, латерально и дорсально; D — бедро палепы; E — брюшко самки; F — эпитина; G — сперматека дорсально.

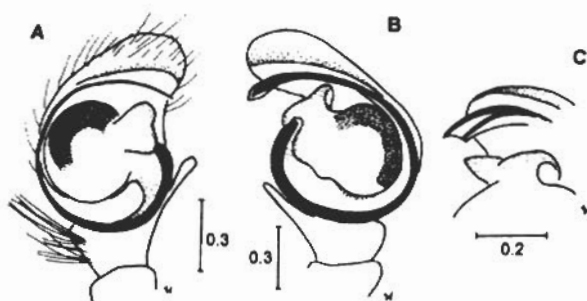


Fig. 21 *Mogrus antoninus* Andreeva, 1976 (A) and *Mogrus larisae* Logunov, in press (B, C): A, B — male palp, ventral view; C — embolus.

Рис. 21. *Mogrus antoninus* Andreeva, 1976 (A) и *Mogrus larisae* Logunov, in press (B, C): A, B — палепа самца вентрально; C — эмболюс.

of *Pistacia vera*, 4♂♂, 7♀♀, 2 juv., 10-12.IV.1993, leg. D. Logunov (ISE); 40 km SE of Ashkhabad, Yashlyk [13], 1♂, 7.IV.1993, leg. A. Zyuzin (ISE).

Redescription: Measurements (male/female): length of carapace 2.8-3.1/2.7-3.2, width of carapace 1.9-2.2/2.0-2.2, height of carapace 1.1-1.3/1.2-1.2, length of abdomen 3.1-3.5/3.2-4.0, width of abdomen 2.0-2.2/2.3-2.7, length of eye field 1.1-1.3/1.1-1.3, anterior width of eye field 1.6-1.7/1.6-1.7, posterior width of eye field 1.5-1.6/1.5-1.7.

Male. Medium-sized. Carapace elongated, rather strongly flattened, dark brown, near eyes black. Long brown bristles and white hairs on eye field. White hairs covering also lateral edges of carapace. Clypeus low with white hairs. Chelicerae brown, at promargin with two teeth, at retromargin with a single tooth. Labium and maxillae brown, with light margins. Sternum light brown, clothed with sparse white hairs. Abdomen oval, with a yellow pattern against a blackish background, ventrally yellowish. Bushy, long, white and brown hairs covering abdomen, especially bushy and long at its anterior margin. Spinnerets greyish-orange. Legs brownish-yellow with darker rings. Leg hairs long, dense, brown and yellowish; spines long, brown. Pedipalps brown. Dense white hairs on palpal femur. Structure of palpal organ as in Fig. 20A-D.

Female. Like male. Abdominal pattern as in Fig. 20E. Epigyne great, more or less strongly rounded, with an incision at posterior edge and two large depressions (Fig. 20F). These depressions plugged with a waxy secretion. Internal structures very strongly sclerotized (Fig. 20G).

Distribution: This species has been described and then repeatedly reported from Middle Asia [Kroneberg, 1875; Andreeva, 1969, 1976; Prószyński, 1979; Nenilin, 1984a], with the westernmost locality lying in the Caucasus (Nakhichevan) [Nenilin, 1985].

Mogrus antoninus Andreeva, 1976

Fig. 21 A.

Material: Chardzhou Area, Amudaryinskii Reserve, Kabakly [6], 1♂, 28.IV.1987, leg. F. Zeleev (ZIP); Mary Area, Sultanbent [14], 1♀, 7.VI.1929, leg. V. Pereleshina (ZMMU); S-Ustyurt, Kaplankyrskii Reserve [3], 2♀♀, 30.IV.1985, leg. L. Mitroshina (ZMMU).

Distribution: This species has been recorded in Middle Asia [Andreeva, 1976; Nenilin, 1984a; Logunov,

1995a], Mongolia [Wesolowska, 1981; Prószyński, 1982], Afghanistan [Andreeva et al., 1981] and Xinjiang, China [Zhou & Song, 1988; Hu & Wu, 1989].

Mogrus larisae Logunov, 1995

Fig. 21B,C.

Material: S-Ustyurt, Kaplankyrskii Reserve [3], 2♂♂, 22.IV.1985, leg. L. Mitroshina (ZIP); Ashkhabad Area [13], Gyaursky Farm of Turkmenian Agricultural Institute, 1♂, 11.IV.1982, leg. O. Soyunov (ZIP).

Distribution: A species widespread in Middle Asia [Logunov, 1995a].

Mogrus valerii Kononenko in Andreeva, Kononenko et Prószyński, 1981

Fig. 22.

Material: Krasnovodsk Area, Chilmamedkum Sands [2], 1♂, V.1985, leg. E. Khachikov (ZIP); Chardzhou Area, Farab Distr., Amudaryinskii Reserve, Amu-Darya River, Narghyz Island [7], 1♂, 17.IV.1983, leg. S. Alekseev (ZMMU).

Distribution: This species is currently known only from the deserts of Turkmenistan and Uzbekistan [Logunov, 1995a].

Phlaeus chrysops (Poda, 1961)

Fig. 23.

Material: Ashkhabad [13], 1♂, 1♀, V.1985, leg. S. Sukh, det. V. Fet (ZMMU); Bolshoy Balkhan Mts, Sakka [4], under stones, 1♀, 19.VI.1929, leg. V. Pereleshina (ZMMU).

Distribution: A widespread Palearctic species.

Phlegra fasciata (Hahn, 1826)

Material: Bolshoy Balkhan Mts, Sakka [4], under stones, 2♀♀, 19.VI.1929, leg. V. Pereleshina (ZMMU); Krasnovodsk Area, Chilmamedkum Sands [2], 1♀, 5.V.1985, leg. E. Khachikov (ZIP).

Distribution: A widespread Holarctic temperate (circumtemperate) species [cf. Logunov, in press].

Plexippoides Prószyński, 1984

Menemerops Prószyński, 1992, **syn.n.**

Notes: Comparison of the descriptions and the structure of the epigyne and spermathecae of *Menemerops sollistimus* Wesolowska et van Harten, 1994, and *M. flavescens* (O. Pickard-Cambridge, 1872), the latter the type-species of *Menemerops* and both described and hitherto known from females only, shows that these species are actually synonyms (**syn.n.**). Furthermore, the discovery in Turkmenistan both of males and females of *Plexippoides arabicus* Prószyński, 1989, a species originally described only from a single male, allows to synonymize it with *Menemerops flavescens* as well. As soon as *Plexippoides flavescens* (= *arabicus*, **syn.n.**) is undoubtedly very closely related to *P. starmuehlneri* (Roewer, 1955), the type-species of *Plexippoides* (cf. fig. 24 and figs 430-431 in Prószyński [1976]), *Menemerops* must be considered as a junior synonym of *Plexippoides* (**syn.n.**). All this is summarized both just above and below.

Plexippoides flavescens (O. Pickard-Cambridge, 1872), **comb.n.**

Fig. 24.

Salticus f. O. Pickard-Cambridge, 1872: 343.

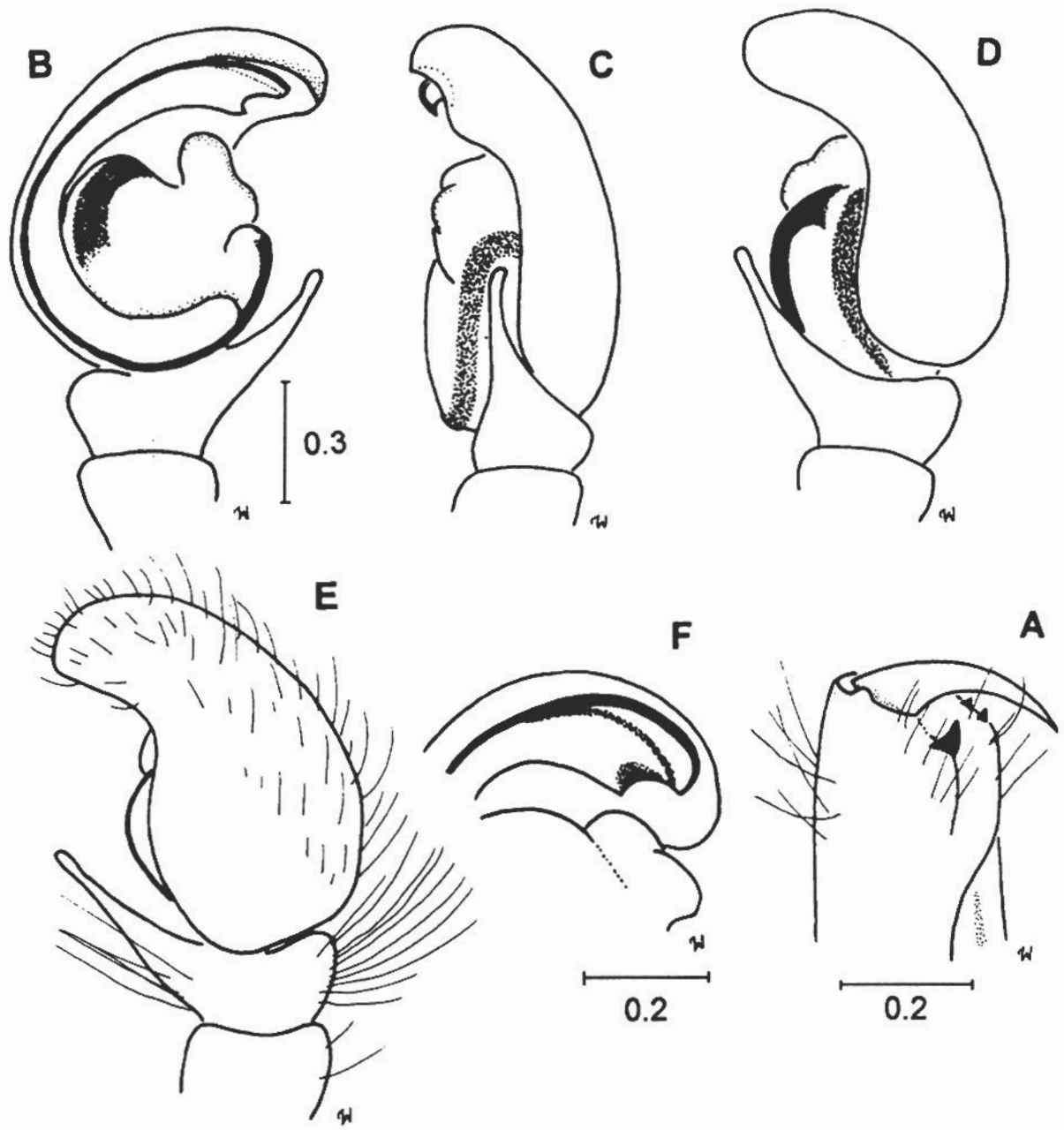


Fig. 22. *Mogrus valerii* Kononenko in Andreeva, Kononenko et Prószyński, 1981: A — male chelicera; B-E — male palp, ventral, two lateral and dorsal views; F — embolus.

Рис. 22. *Mogrus valerii* Kononenko in Andreeva, Kononenko et Prószyński, 1981: A — хелицера самца; B-E — палепа самца, вентрально, латерально и дорсально; F — эмболюс.

Menemerus f.: Prószyński, 1984: 86.

Menemerops f.: Prószyński, 1992: 99-100, f. 44-45.

Plexippoides arabicus Prószyński, 1989: 47-49, f. 44-45; **syn.n.**

Menemerops sollistimus Wesolowska et van Harten, 1994: 45, f. 97-98; **syn.n.**

Material: 20 km SE of Polekhatum, S foothills of Gezgyadyk Mt. Range [17], 7 ♂♂, 2 ♀♀, 15-16.IV.1993, leg. D. Logunov (ISE).

Redescription: Measurements (male/female): length of carapace 2.4-2.8/3.2, width of carapace 1.7-2.1/2.2, height of carapace 1.0-1.3/1.2, length of abdomen 2.2-2.9/3.5, width of abdomen 1.4-1.7/2.6, length of eye

field 1.0-1.3/1.2, anterior and posterior width of eye field 1.4-1.6/1.8.

Male. Medium-sized to big with long legs. Carapace dark brown, eye field shining, almost black. Dark scales surrounding anterior eyes, long brown bristles in anterior part of eye field, short brown and whitish hairs on sides of carapace. Clypeus, chelicerae, labium and maxillae brown. Sternum brownish marginally and yellow centrally. Abdomen rather dark, brownish-grey, in its anterior half with a medial dark brown stripe, at posterior edge of

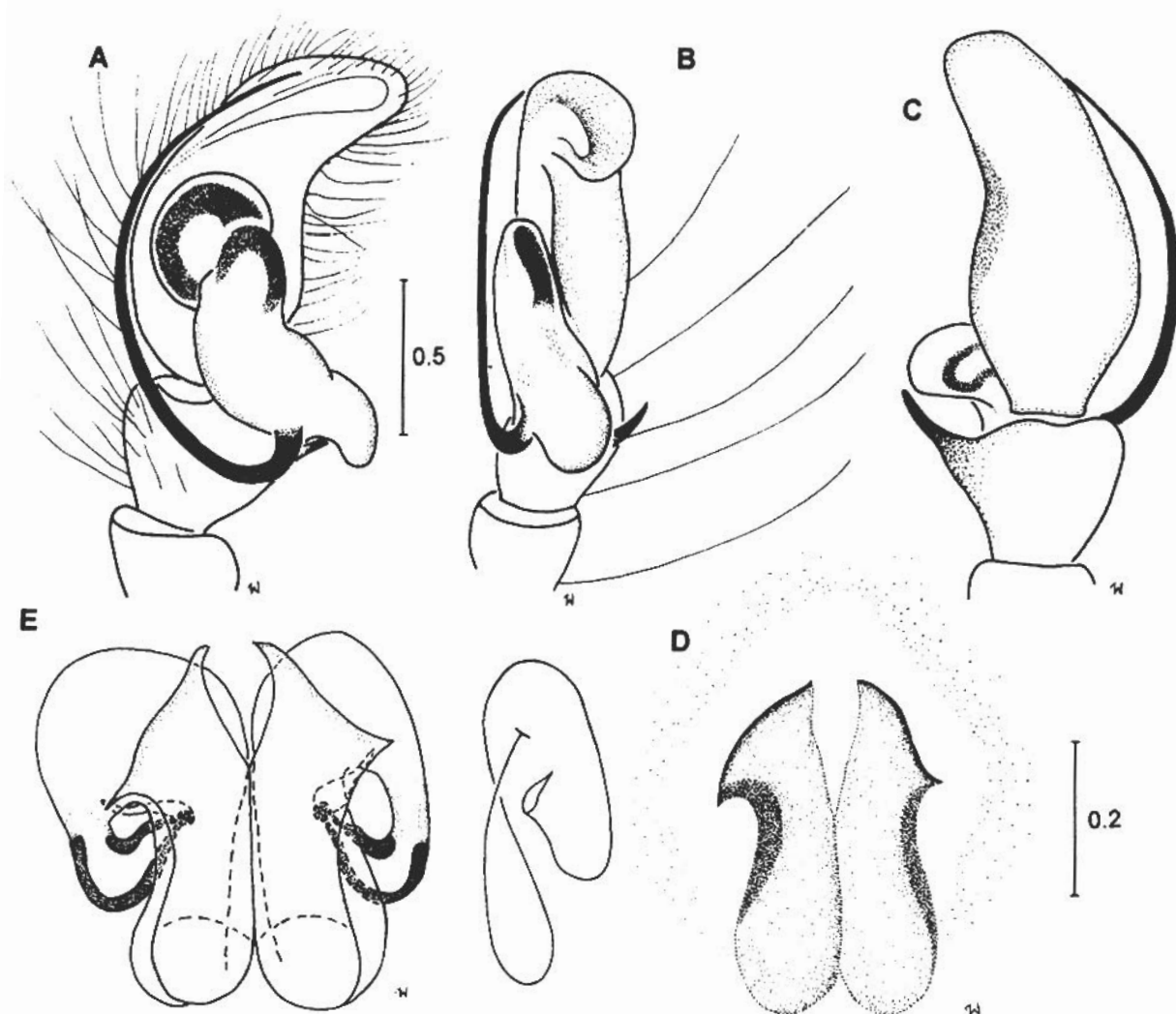


Fig. 23. *Phlaeus chrysops* (Poda, 1961): A-C — male palp, ventral, lateral and dorsal views; D — epigyne; E — spermathecae.
Рис. 23. *Phlaeus chrysops* (Poda, 1961): A-C — палепа самца, вентрально, латерально и дорсально; D — эпигина; E — сперматека.

abdomen with two light, small, crescent dots. Numerous adherent brown and greyish-white hairs and scattered brown bristles on abdomen. Abdomen yellowish ventrally, with a long, wide, dark stripe. Spinnerets yellow. Legs long, yellowish or brownish, distal parts of their segments darker. Leg hairs long, dense, brown and greyish; spines numerous, brown. Pedipalps with very long, dense, white hairs on cymbium, hairs white and black on palpal tibiae. Cymbium broad, its protruding edge reaching the end of tibial apophysis (Fig. 24B). Bulbus rounded, embolus thin, long (Fig. 24A).

Female. Carapace elongated, orange to light brown, eye field a little darker. Long brown bristles on eye field. A thin, longitudinal, light line behind eye field medially. Dense yellowish-grey and brown hairs on carapace. Chelicerae brown, with a single retromarginal tooth and two promarginal teeth, all these teeth very small. Labium brown, maxillae brown with pale margins. Sternum light yellow. Abdomen elongated, brown, with a yellow pattern composed of a wide, irregular, yellow, medial streak and light patches on abdominal sides. Dense

yellowish hairs covering abdomen, individual brown bristles among them. Abdomen light ventrally. Spinnerets yellowish. Legs long, whitish-yellow with brown patches at apical end of segments. Leg hairs long, brown and yellow, spines brown. Epigyne heavily sclerotized, as in Fig. 24C. Seminal ducts short, spermathecae multi-chambered (Fig. 24D).

Remarks: Comparison of the fine structure of the genitalia in *Plexippoides flavescens*, *P. arabicus* and *Menemerops sollistimus* leaves no doubts that all these species are the same, hence the above formal synonymization.

Distribution: Hitherto known only from the Arabian Peninsula [Pickard-Cambridge, 1872 (sub *Salticus flavescens*); Prószyński, 1989, 1984; Wesołowska & van Harten, 1994] and Middle Asia (see above a discussion of the records of *Evarcha afghana* and *Plexippoides star-muehlneri* in Turkmenistan [Nenilin, 1984, 1985]).

Plexippus coccineus Simon, 1902

Figs 25, 26A-C.

Material: Chardzhou Area, Amudaryinskii Reserve, Farab [7],

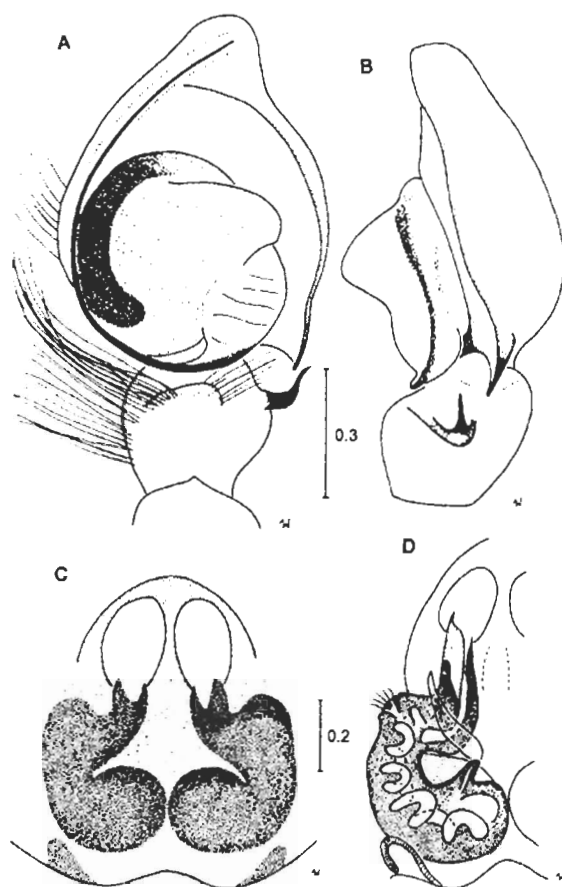


Fig. 24. *Plexippoides flavescens* (O. Pickard-Cambridge, 1872): A, B — male palp, ventral and lateral views; C — epigyne; D — spermatheca.

Рис. 24. *Plexippoides flavescens* (O. Pickard-Cambridge, 1872): А, В — пальпа самца, вентрально и латерально; С — эпигина; D — сперматека.

2 ♂♂, 10.VI.1987, leg. F. Zeleev (ZIP); SW-Kopetdagh Mts, Kara Kala, Syunt-Khasardagskii Reserve [9], in litter, 2 ♀♀, 28-29.IV.1993, leg. D. Logunov (ISE).

Redescription: Measurements (male/female): length of carapace 2.4/2.3-2.9, length of abdomen 2.5/2.5-3.3, length of eye field 1.0/1.2-1.3, anterior and posterior width of eye field 1.5/1.5-1.8.

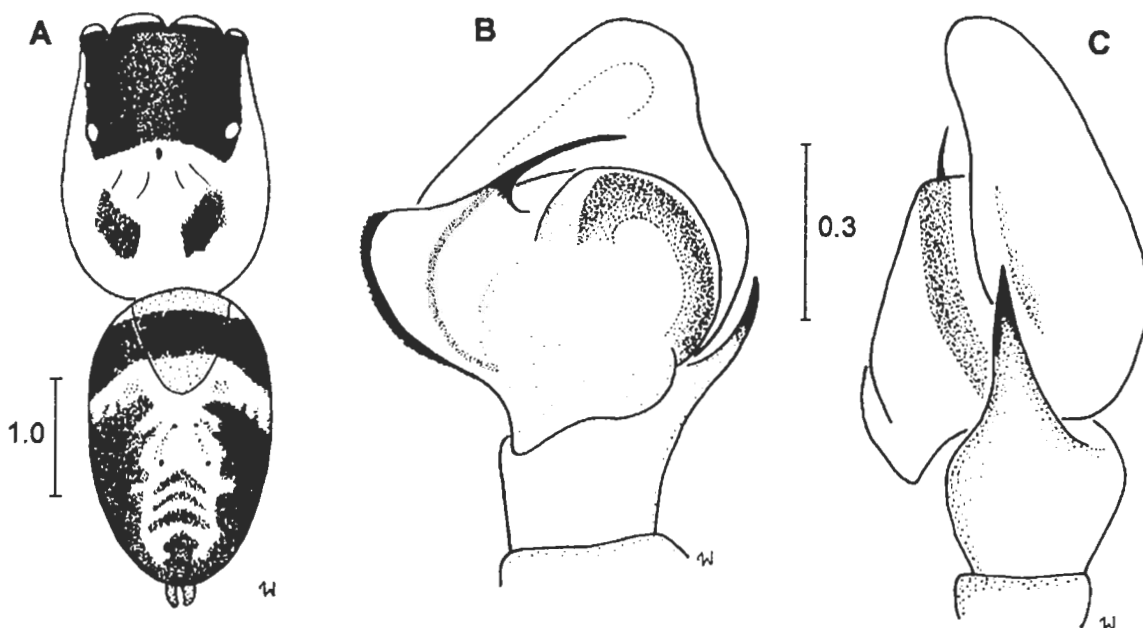
Male. General appearance as in Fig. 25A. Carapace orange, eye field dark brown. Long brown hairs covering carapace, thoracic part with two patches composed of dark hairs. Abdomen dark brown with a yellowish pattern, at its anterior edge with a small delicate scutum. Long brown and orange hairs covering abdomen. Spinnerets yellowish-grey. Legs brownish. Pedipalps dark, cymbium rather short and wide, single tibial apophysis short and pointed, bulbus with a heavily sclerotized, serrate, prolateral keel, embolus thin and short (Fig. 25B-C).

Female. Carapace yellowish-orange, eye field brown, near eyes black. Long brown hairs covering carapace. Chelicerae brown, labium and maxillae brown with pale margins. Sternum yellowish-white. Abdomen brown, with a yellowish pattern (Fig. 26A). Long hairs on abdomen, longer and denser at its anterior margin. Spinnerets brown. Legs brown with paler metatarsi and tarsi. Leg hairs and spines brown. Epigyne as in Fig. 26B. Internal structures heavily sclerotized (Fig. 26C).

Distribution: This species is widespread in Middle Asia, though known there as *Plexippus strandi* [cf. Spassky, 1939; Andreeva, 1969, 1976; Ovtsharenko & Fet, 1980; Fet, 1983; Nenilin, 1984a; Kuznetsov & Fet, 1986; Mikhailov & Fet, 1994]. Under the same name, it has been recorded in Azerbaijan, Caucasus [Dunin, 1979]. The synonymy with *P. coccineus* was established by Nenilin [1985].

Fig. 25. *Plexippus coccineus* Simon, 1902: A — general appearance of male; B, C — male palp, ventral and lateral views.

Рис. 25. *Plexippus coccineus* Simon, 1902: А — самец, общий вид; В, С — пальпа самца, вентрально и латерально.



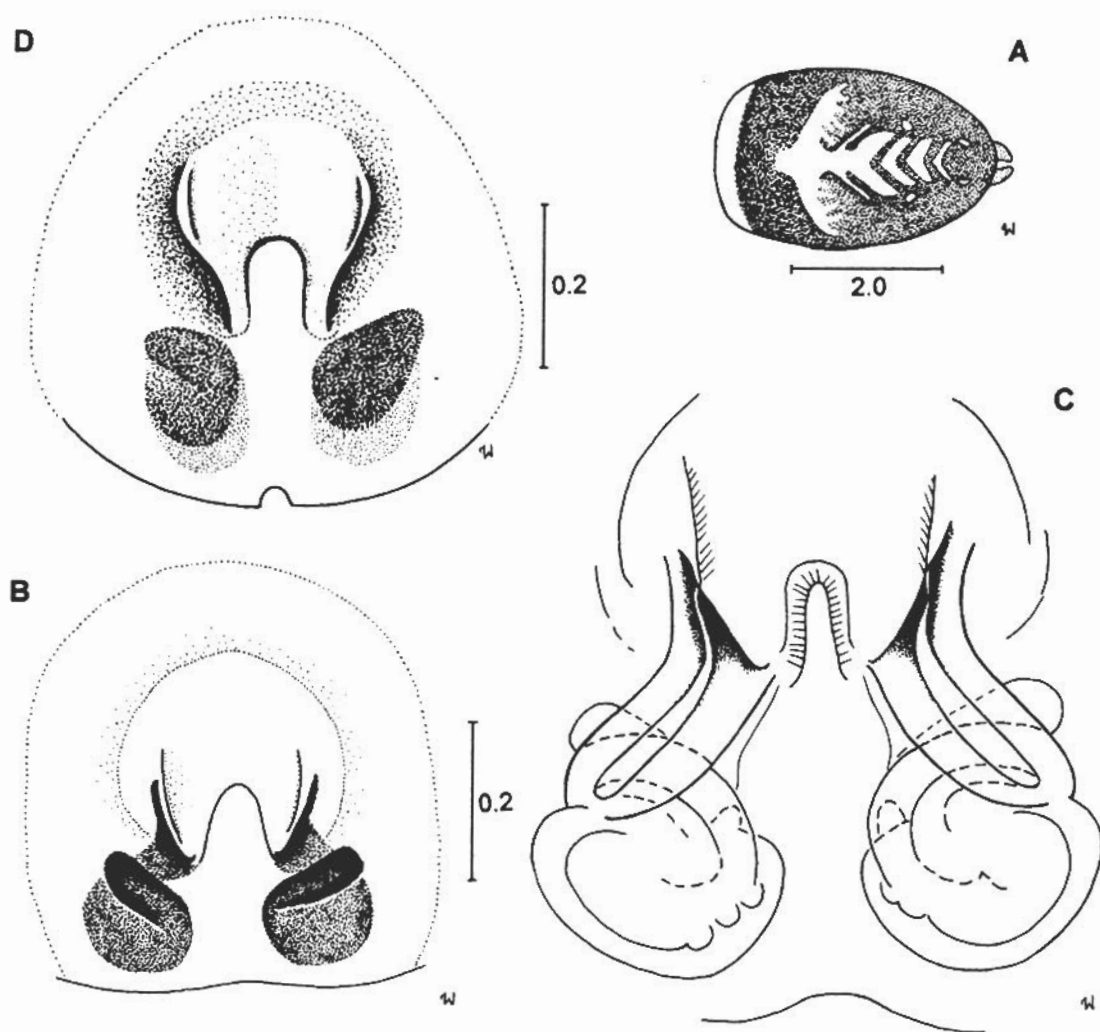


Fig. 26. *Plexippus coccineus* Simon, 1902 (A-C) and *Plexippus setipes* (Karsch, 1879) (D): A — abdominal pattern of female; B, D — epigyne; C — spermathecae.

Рис. 26. *Plexippus coccineus* Simon, 1902 (A-C) и *Plexippus setipes* (Karsch, 1879) (D): A — брюшко самки; B, D — эпигина; C — сперматека.

Plexippus setipes (Karsch, 1879)

Fig. 26D.

Material: SW-Kopetdagh Mts, Aidere [12], 1 ♂, 1 ♀, V.1981, leg. V. Fet (ZIP).

Redescription: Measurements (male/female): length of carapace 3.2/2.7, length of abdomen 3.1/4.4, length of eye field 1.2/1.2, anterior and posterior width of eye field 1.9/1.7.

Male. Medium-sized. Carapace orange to light brown, with a darker eye field, near eyes brown. Long brown hairs covering carapace. Abdomen oval, brownish-rusty with a yellow, broad, median band, light yellow ventrally. Numerous brown setae scattered over abdomen. Spinnerets brownish-orange. Legs yellow to orange with long brown spines. Leg hairs brown and black. Pedipalps brown.

Female. Coloration like in male but abdominal pattern less strongly contrasting. Epigyne large, very heavily sclerotized, with fissured gonopores (Fig. 26D).

Distribution: Reported from Japan [Prószyński, 1973], China [e.g., Song, 1987], Vietnam [Zabka, 1985], Turkmenistan and Azerbaijan, Caucasus [Prószyński, 1973].

Pseudicius braunsi Peckham et Peckham, 1903

Fig. 27.

Pseudicius braunsi Peckham et Peckham, 1903: 211, Pl. XXVI, f. 1.

Pseudicius b.: Prószyński, 1987: 52.

Pseudicius braunsi: Logunov, 1995: 240-242, f. 12-19.

Afraflacilla arabica Wesolowska et van Harten, 1994: 4-7, f. 6-10. **Syn.n.**

Material: Tashauz [5], 1 ♀, 27.VI.1987, leg. L. Mitroshina (ZIP).

Remarks: Comparison of the holotype of *Afraflacilla arabica* with Turkmenian specimens of *Pseudicius braunsi* allows to establish the above synonymy. The identity of the Turkmenian specimens with the holotype of *P. braunsi* has been proven by Logunov [1995b].

Distribution: This species has been recorded in S-Africa [Peckham & Peckham, 1903], Yemen [Wesolowska & van Harten, 1994 (sub *Afraflacilla arabica*)] and Turkmenistan [Logunov, 1995b].

Pseudicius courtlaudi Bristowe, 1934

Fig. 28.

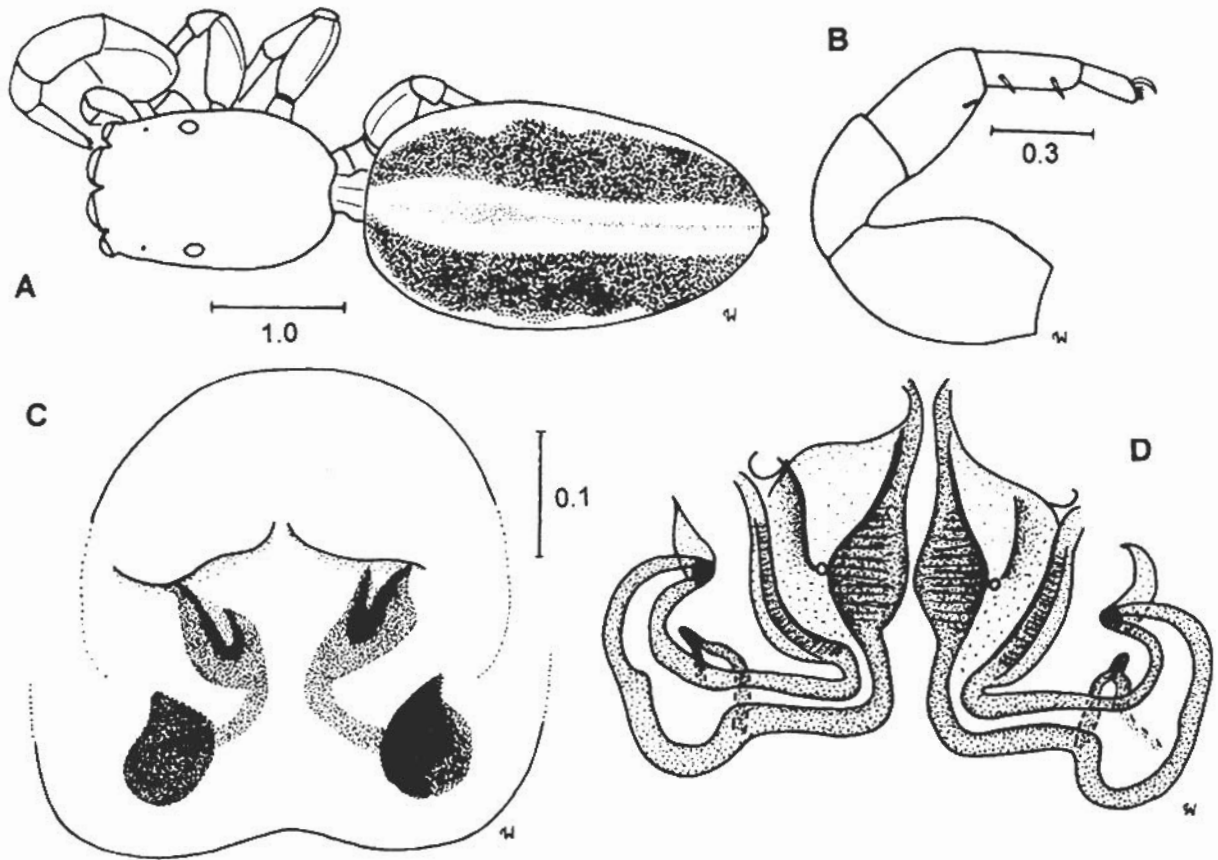


Fig. 27. *Pseudicius braunsii* Peckham et Peckham, 1903: A — general appearance of female; B — first leg; C — epigyne; D — spermathecae.

Рис. 27. *Pseudicius braunsii* Peckham et Peckham, 1903: A — самка, общий вид; B — первая нога; C — эпигина; D — сперматека.

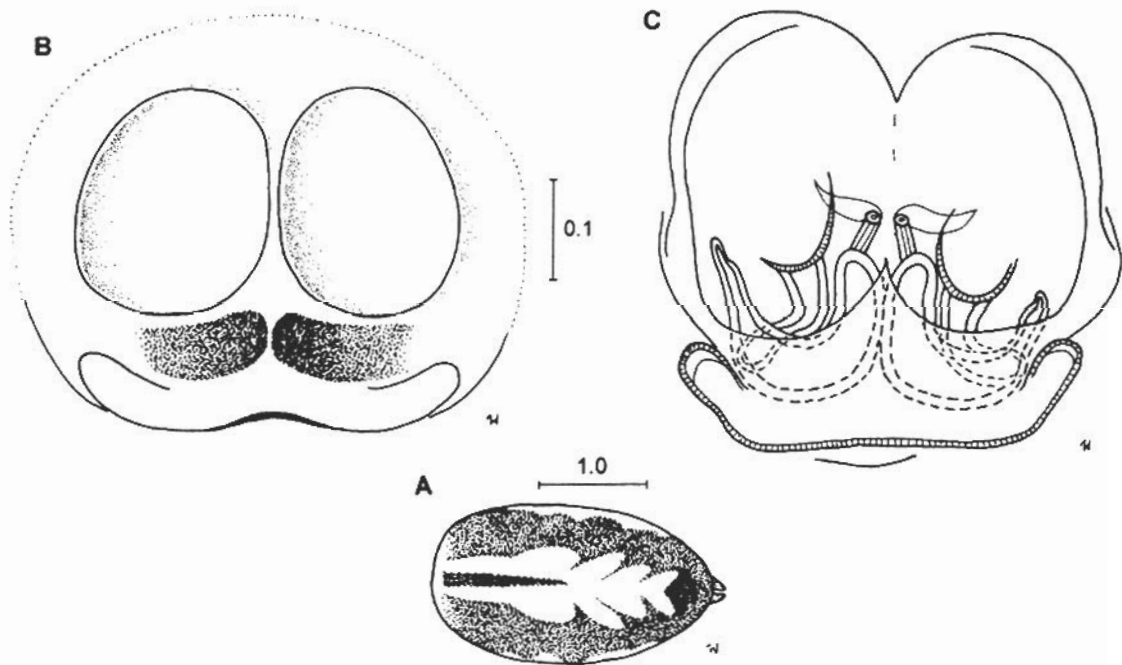


Fig. 28. *Pseudicius courtlandi* Bristowe, 1934: A — abdominal pattern of female; B — epigyne; C — spermathecae.

Рис. 28. *Pseudicius courtlandi* Bristowe, 1934: A — брюшко самки; B — эпигина; C — сперматека.

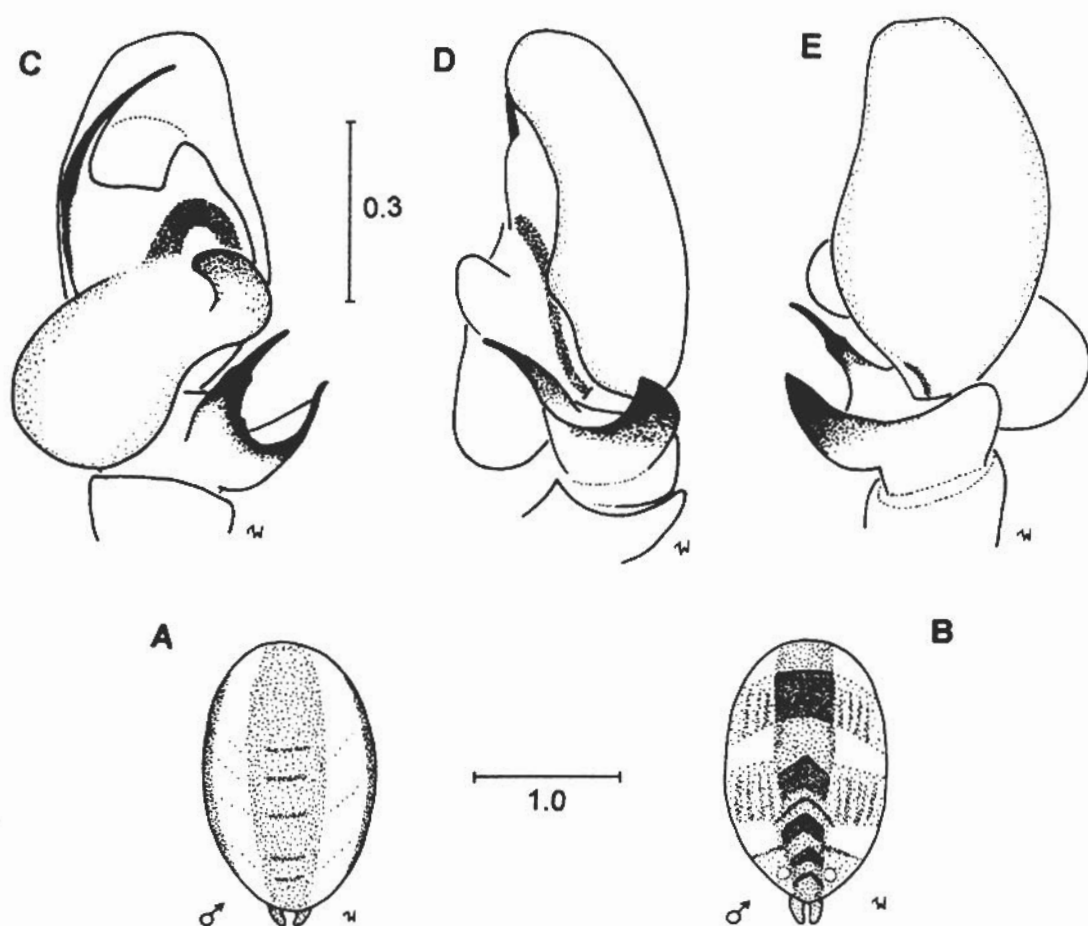


Fig. 29. *Pseudicius spasskyi* (Andreeva, Hęciak et Prószyński, 1984): A, B — abdominal pattern of male; C-E — male palp, ventral lateral and dorsal views.

Рис. 29. *Pseudicius spasskyi* (Andreeva, Hęciak et Prószyński, 1984): A, B — брюшко самца; C-E — пальпа самца, вентрально латерально и дорсально.

Material: Chardzhou Area, Amudaryinskii Reserve, Kabakly [6], 1 ♀, 1 imm. F, 22.IV.1987, leg. F. Zeleev (ZIP).

Distribution: This species is distributed in W-Turkey, Middle Asia, and the Xinjiang Province of China [Logunov, 1993a], this being the first record in Turkmenistan.

Pseudicius spasskyi (Andreeva, Hęciak et Prószyński, 1984)

Figs 29-30.

Material: Chardzhou Area, Amudaryinskii Reserve, Kabakly [6], 1 ♀, 13.X.1986, leg. F. Zeleev (ZIP), 1 ♂, 1 juv., 22.IV.1987 (ZIP), 1 ♂, 1 ♀, 1 juv., 8.V.1987 (ZIP); Farab [7], 1 imm. ♂, 1 ♀, 4.I.1987, leg. F. Zeleev (ZIP), 1 ♀, 9.I.1987 (ZIP), 1 ♀, 12-16.I.1987 (ZIP), 1 ♂, 24-25.I.1987 (ZIP); SW-Kopetdagh Mts, Kara Kala Distr., Syunt-Khasardagskii Reserve [9], on trunk of *Ficus carica*, 3 ♂♂, 5 ♀♀, 28-29.IV.1993, leg. D. Logunov (ISE).

Redescription: Measurements (male/female): length of carapace 2.1-2.5/2.3-2.4, width of carapace 1.7-1.8/1.7-1.8, height of carapace 0.7-0.8/0.9, length of abdomen 2.2-3.0/2.5-3.2, width of abdomen 1.7-1.9/2.2-2.3, length of eye field 0.9-1.0/0.9-1.3, anterior width of eye field 1.2-1.3/1.2-1.3, posterior width of eye field 1.3-1.4/1.4-1.5.

Male. Carapace low, brown, with a darker field, eyes surrounded by black. Carapace covered with adherent,

short, dense, white and yellowish hairs interspersed with sparse long bristles, near eyes bristles denser. Clypeus low, brown. Chelicerae brown, with a single retromarginal tooth and two teeth at promargin. Labium and sternum brown, maxillae brown with paler margins. Abdomen elongated, brownish-golden with two longitudinal white stripes (Fig. 29A), in some darker specimens additionally with three transverse bands (Fig. 29B). A few long brown hairs on abdomen, with more dense, brown and white hairs at its anterior margin. Abdomen light ventrally, only in some specimens dark. Spinnerets dark brown. Legs yellow, first pair brown with more pale femora. Leg hairs and spines brown. Stridulatory apparatus type leg-carapace. Pedipalps brownish-orange, as in Fig. 29C-E. A characteristically serrate, ventral, tibial apophysis.

Female. Like male. Carapace brown, covered with dense, short, whitish-grey hairs. Chelicerae light brown; labium, maxillae and sternum yellow. Abdomen brown with transverse lighter belts, but pattern not contrasting (Fig. 30A). Legs pale yellow. Stridulatory apparatus present. Epigyne big and broad, with a large depression, gonopores placed in anterior part of epigyne (Fig. 31B, C). Internal structures as in Fig. 30D.

Diagnosis: This species is closely related to *P. cinctus* (O. Pickard-Cambridge, 1885). The male can be distin-

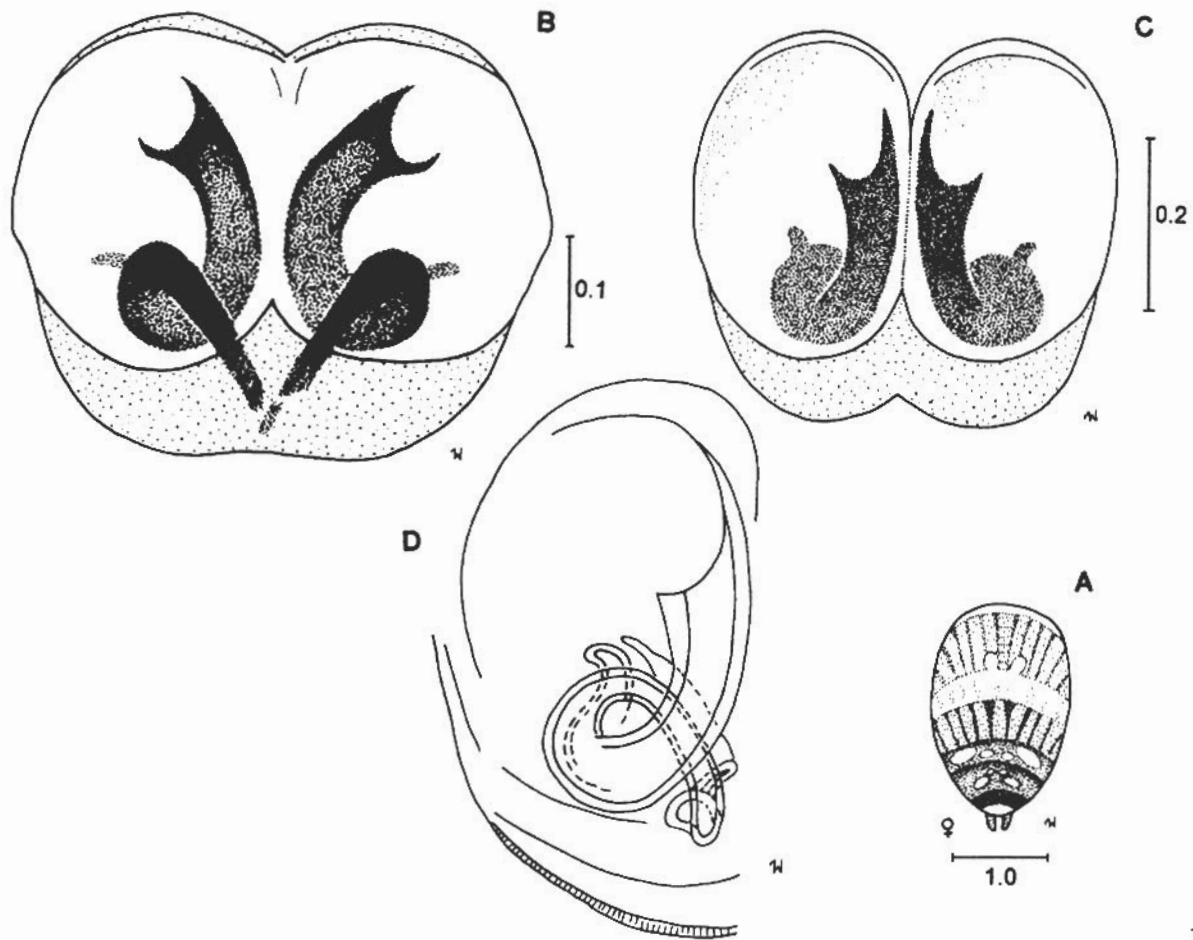


Fig. 30. *Pseudicius spasskyi* (Andreeva, Hęciak et Prószyński, 1984): A — abdominal pattern of female; B, C — epigyne; D — spermatheca.

Рис. 30. *Pseudicius spasskyi* (Andreeva, Hęciak et Prószyński, 1984): A — брюшко самки; B, C — эпигина; D — сперматека.

guished by the structure of the palpal apophyses, the female by the shape of the epigyne.

Distribution: Described and known only from Middle Asia [Andreeva et al., 1984; Nenilin, 1985; Mikhailov & Fet, 1994]. This is the first record in Turkmenistan.

Salticus dzhungaricus Logunov, 1992

Fig. 31

Material: Chardzhou Area, Amudaryinskii Reserve, Kabakly [6], 2 ♂, 2 ♀, 24.IV.1987, leg. F. Zeleev (ZIP), 1 ♂, 1 ♀ (ISE).

Redescription: Measurements (male/female): length of carapace 1.7/1.7-1.8, width of carapace 1.2/1.2, height of carapace 0.7/0.8, length of abdomen 1.8/1.9-2.2, width of abdomen 1.1/1.2, length of eye field 0.7/0.7, anterior and posterior width of eye field 0.9.

Male. Small-sized. Carapace low, elongated, dark brown, with an almost black eye field. White adherent hairs and scales on eye field, long brown bristles near eyes. Labium and sternum brown, maxillae dark brown with pale margins. Chelicerae long, their dentation as in Fig. 31A. Abdomen elongated, dark brown, at its anterior margin with a white band extending to the sides and composed of white hairs. A longitudinal median white stripe in posterior part of abdomen. Abdomen dark ventrally. Spinnerets brown. Legs long, yellowish, with

darker femora, only first pair totally brown. Leg hairs brown, spines present only on metatarsi III and IV. Pedipalps yellowish-brown. White scales at base of cymbium. Tibial apophysis long. A detailed structure of palpal organ as in Fig. 31B-D.

Female. Similar to male. Very long and dense hairs at anterior margin of abdomen. Epigyne as in Fig. 31E. Spermathecae rather simple, elongate; seminal ducts straight (Fig. 31F).

Remarks: This is the first description of the male of this species.

Distribution: SE-Kazakhstan and Turkmenistan [Logunov, 1992a, 1995b].

Salticus tricoloratus (C.L. Koch, 1846)

Fig. 32.

Material: Chardzhou Area, Amudaryinskii Reserve [6], sandy desert, 1 ♂, IV.1985, leg. A. E. Cherenkov (ZMMU), Amudaryinskii Reserve, Kabakly [6], 1 ♂, 28.III.1987, leg. F. Zeleev, 1 ♀, 24.IV.1987 (ZIP).

Distribution: A Middle Asian species [Logunov, 1992a: fig. 5].

Sitticus amophilus (Thorell, 1875)

Fig. 33.

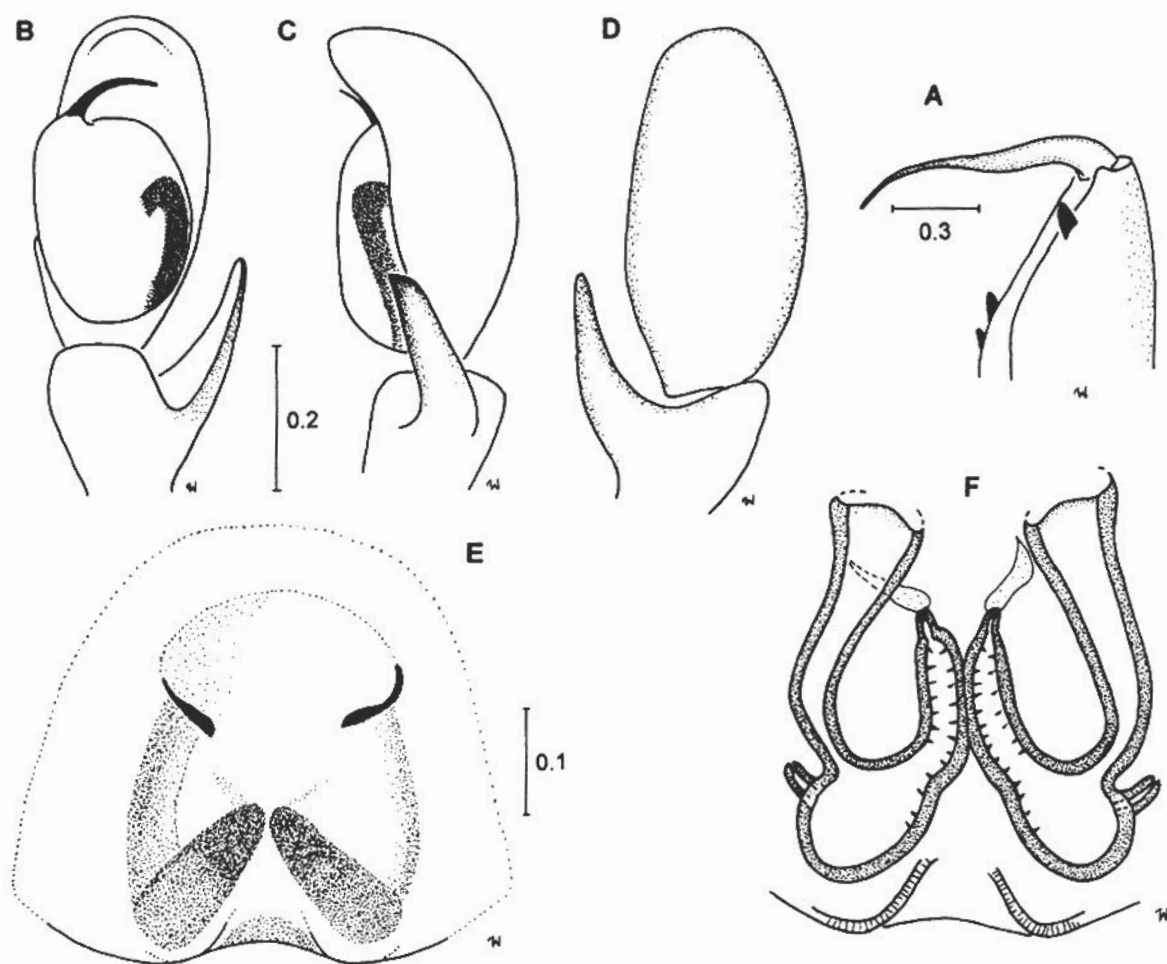


Fig. 31. *Salticus dzhungaricus* Logunov, 1992: A — male chelicera; B-D — male palp, ventral, lateral, and dorsal views; E — epigyne; F — spermatheca.

Рис. 31. *Salticus dzhungaricus* Logunov, 1992: A — хелицера самца; B-D — пальпа самца, вентрально, латерально и дорсально; E — эпигина; F — сперматека.

Attus a. Thorell, 1875b: 119; 1875: 192.

Sitticus a.: Prószyński, 1976: map 182; Ibid., 1983: map 9; Ibid., 1987: 86-87; Richman & Cutler, 1978: 99.

Sitticus vilis Kulczyński, 1895: 580: **syn. n.**

S. v.: Prószyński, 1976: f. 303, map 184; Ibid., 1983: m. 9; Ibid., 1987: 98.

Material: Lake Sarykamysh [16], 1 ♀, IV.1987, leg. I. Mitroshina (ZIP); Chardzhou Area, Farab Distr., Amudaryinskii Reserve, Amu-Darya River, Narghyz Island [7], 1 ♀, 14.IV.1983, leg. S. Alekseev (ZIP); Murghab River, 1 ♀, 29.V.1929, leg. V. Sytshenskaya (ZMMU).

Redescription: Measurements: length of carapace 2.0, length of abdomen 3.8, length of eye field 1.0, anterior and posterior width of eye field 1.4.

Female. Carapace dark brown with a darker eye field. Long brown bristles near eyes, adherent white hairs on carapace. Clypeus very low. Chelicerae brown, three small teeth at promarginal edge. Labium brown, maxillae orange, sternum dark brown with white hairs. Abdomen rounded, pointed at its end, general coloration greyish; dense, adherent, short, whitish hairs against a darker background, with individual brown bristles scattered among them. Abdomen paler ventrally. Spinnerets rather long, light grey. Legs yellow with brown rings, their hairs brown and greyish.

Epigyne small, with a notch at posterior edge (Fig. 33A,B). Internal structures as in Fig. 33C.

Remarks: Based on the fine structure of the genitalia (cp. figs on p. 86-87 and 98 in Prószyński [1987]), *S. vilis*, reported from the Crimea and Armenia [Kulczyński, 1895; Prószyński, 1976], is certainly a junior synonym of *Sitticus ammophilus* (**syn. n.**).

Distribution: A species distributed from the S-Ukraine to Turkmenistan [Logunov & Wesołowska, 1995: fig. 4].

Sitticus zimmermanni (Simon, 1877)

Fig. 34.

Material: W-Kopetdagh Mts, Kara Kala Distr., Aidere, Annakara [12], in forest, 1 ♂, 1 ♀, 3-13.VII.1983, leg. V. Fet (ZIP).

Distribution: A Euro-Siberian temperate species [cf. Danilov & Logunov, 1993] first reported from Turkmenistan by Fet [1983].

Sitticus sp.

Fig. 35.

Material: Chardzhou Area, Farab Distr., Amudaryinskii Reserve, Amu-Darya River, Narghyz Island [7], 1 ♀, 17.IV.1983, leg. S. Alekseev (ZIP).

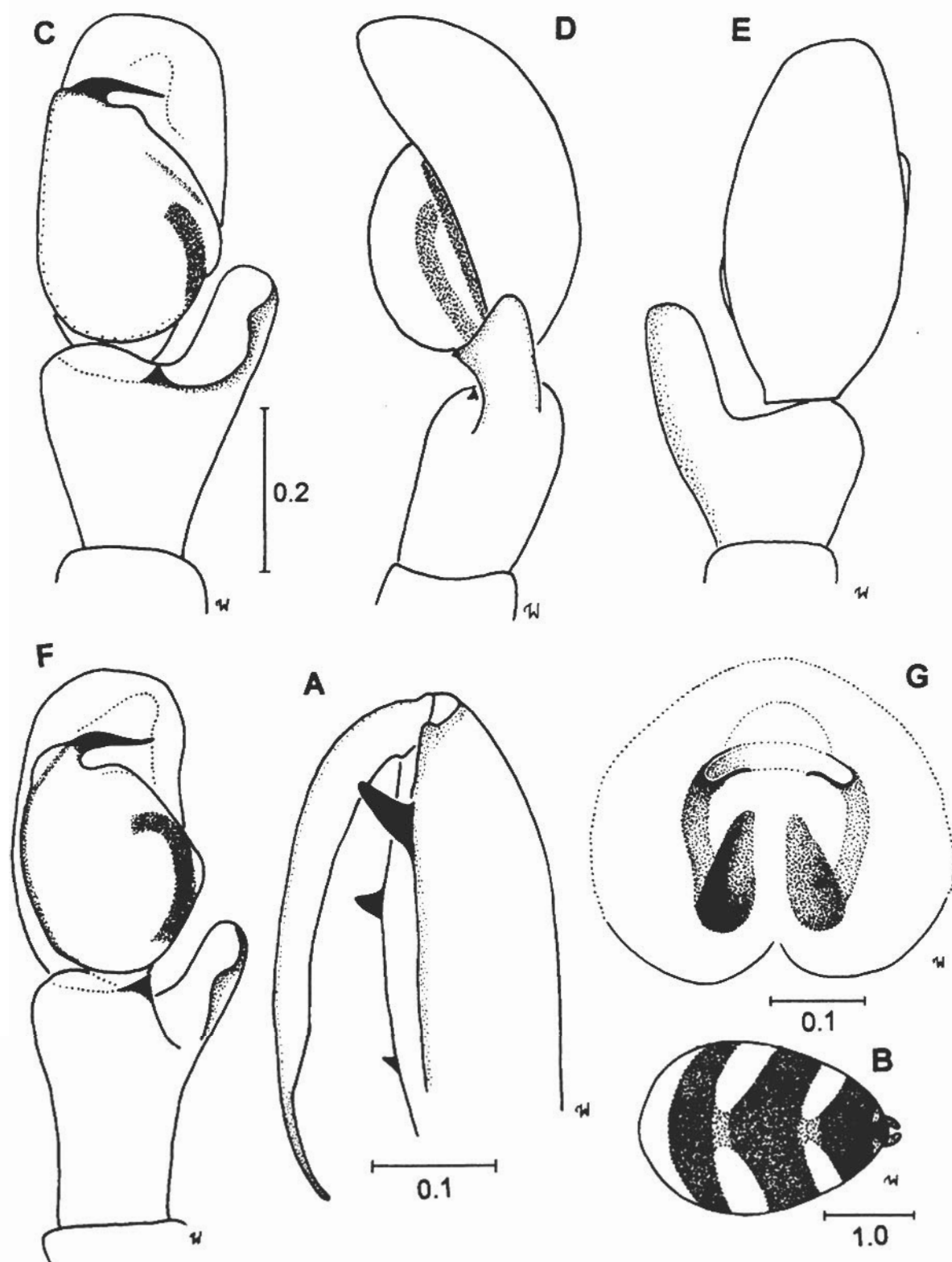


Fig. 32. *Salticus tricinctus* (C.L. Koch, 1846): A — male chelicera; B — abdominal pattern of male; C-F — male palp, two ventral, lateral and dorsal views; G — epigyne.

Рис. 32. *Salticus tricinctus* (C.L. Koch, 1846): A — хелицера самца; B — брюшко самца; C-F — пальпа самца, вентрально, латерально и дорсально; G — эпигина.

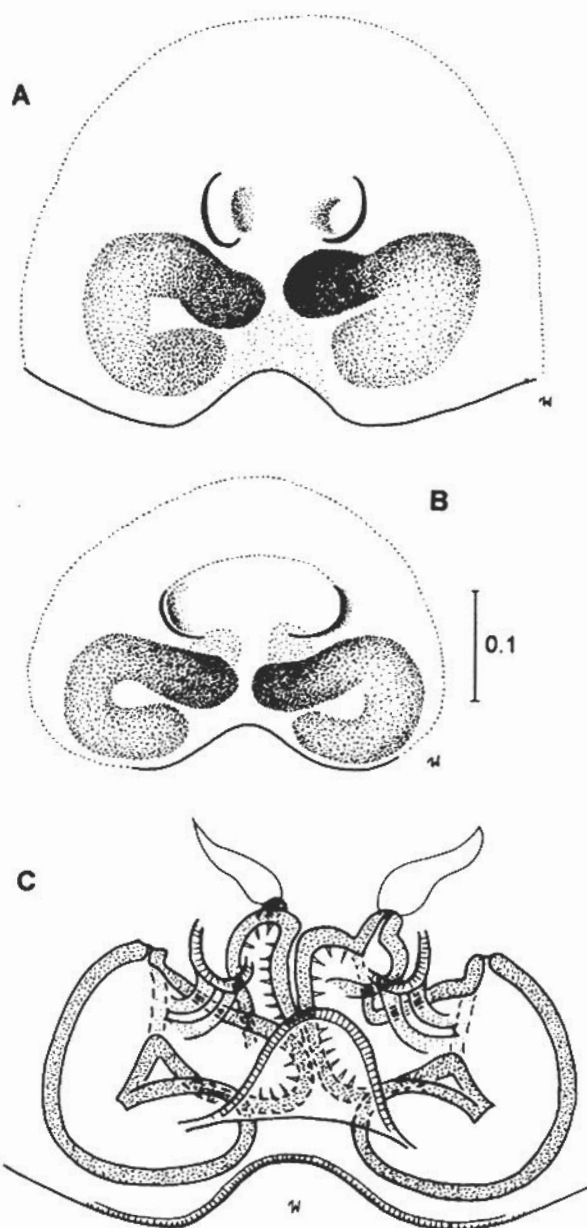


Fig. 33. *Sitticus ammophilus* (Thorell, 1875): A, B — epigyne; C — spermathecae.

Рис. 33. *Sitticus ammophilus* (Thorell, 1875): A, B — эпигина; C — сперматека.

Description: Measurements: length of carapace 2.0, width of carapace 1.6, height of carapace 0.9, length of abdomen 1.9, width of abdomen 1.4, length of eye field 0.9, anterior and posterior width of eye field 1.4.

Female. Carapace rather wide, brown, near eyes black. Long brown bristles near eyes, numerous white hairs over entire carapace. Chelicerae brown, two small teeth at promargin. Maxillae, labium and sternum light brown. Abdomen rounded, brown, with a light central part (maybe faded) (Fig. 35A). White and brown hairs on abdomen. Spinnerets dark. Legs yellow with brown patches, ventral surfaces of femora dark brown. Epigyne with a big notch at posterior margin and two rounded

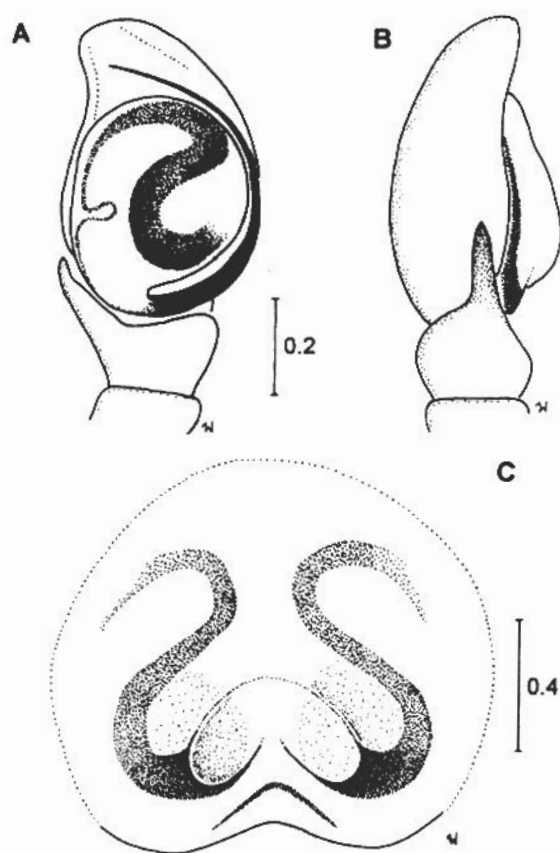


Fig. 34. *Sitticus zimmermanni* (Simon, 1877): A, B — male palp, ventral and lateral views; C — epigyne.

Рис. 34. *Sitticus zimmermanni* (Simon, 1877): A, B — пальпа самца, вентрально и латерально; C — эпигина.

openings (Fig. 35B). Internal structures rather simple, weakly sclerotized (Fig. 35C).

Remarks: The above specimen is in a rather poor condition, so its abdominal coloration (Fig. 35A) cannot be considered a species-specific pattern. The genitalia (Fig. 35B-C) suggest this to belong to a new species. Yet I refrain from naming it until other specimens have been found.

Thyene imperialis (Rossi, 1847)

Material: SW-Kopetdagh Mts, Kara Kala [9], 1♂, V.1974, leg. V. Makeyev (ZMMU).

Distribution: A species distributed in the Mediterranean, the Near East, E-Africa and SE-Asia. In Middle Asia, it is known from Tajikistan [Andreeva, 1976] and Turkmenistan [Fet, 1983; Mikhailov & Fet, 1994].

Yllenus auspex (O. Pickard-Cambridge, 1885)

Fig. 36.

Material: S-Ustyurt, Kaplankyrskii Reserve [3], 1♂, 14.V.1987, leg. L. Mitroshina (ZMMU), 2 ♂♂, 3 ♀♀, 16.V.1987 (ZIP); Tashauz [5], 1 ♀, 27.VI. 1987, leg. L. Mitroshina (ZIP), Krasnovodsk Area, Chilmamedkum Sands [2], 3 ♂♂, V.1985, leg. E. Khachikov (ZIP).

Redescription: Measurements (male/female): length of carapace 1.7-2.0/1.8-1.9, length of abdomen 1.7-2.5/2.8-3.2, length of eye field 0.7-0.9/0.9, anterior width of

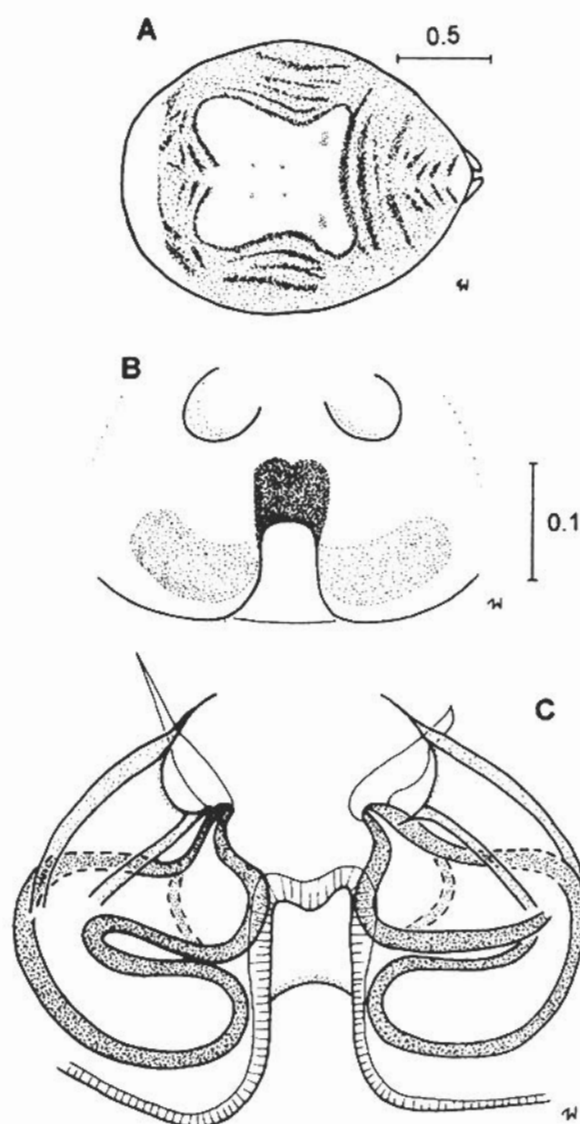


Fig. 35. *Sitticus* sp.: A — abdominal pattern of female; B — epigyne; C — spermathecae.

Рис. 35. *Sitticus* sp.: A — брюшко самки; B — эпигина; C — сперматека.

eye field 1.1-1.2/1.2, posterior width of eye field 1.2-1.4/1.4.

Male. Medium-sized. Carapace convex, especially so in cephalic part. Coloration of carapace dark brown to black. A few long brown bristles near eyes, entire carapace covered with very small white scales. White hairs on clypeus. Labium and maxillae brown, with yellowish margins. Chelicerae dark brown, without teeth. Sternum black with white hairs. Abdomen clothed with dense, short, white and grey hairs, with a median, longitudinal, dark brown, irregular stripe posteriorly. Abdomen brownish ventrally. Spinnerets greyish. Legs yellow, lateral surfaces of femora and tibiae brown. Leg hairs and spines light. Long, dense, dark hairs on metatarsus and tarsus I. Tarsal claws long. Pedipalps light. A small process on ventral surface of femur.

Cymbium narrow, bulbus small with a protuberance near its base, a single tibial apophysis unciform and rather slender, embolus long and thin, its conductor big and wide (Fig. 36A-C).

Female. Like male, but coloration slightly lighter. A longitudinal, median, brown stripe on posterior half of eye field and on thoracic part of carapace. Sternum dark with a lighter center. Abdominal pattern as in male but less strongly contrasting. Epigyne with two pyriform openings, vaginal roof curved (Fig. 36D).

Distribution: A species reported from Mongolia [Prószyński, 1968], China (Inner Mongolia, Yarkand and Xinjiang) [Punda, 1975; Prószyński & Zochowska, 1981; Hu & Wu, 1989], India (Ladakh) [Zabka, 1981], the Caucasus [Nenilin, 1985] and Turkmenistan [Mikhailov & Fet, 1994].

Yllenus flavociliatus Simon, 1895

Figs 37-39.

Material: Krasnovodsk Area, Chilmamedkum Sands [2], 21♂♂, 3♀♀, 1 juv., X.1985, leg. E. Khachikov (ZMMU), 4♂♂, 5♀♀, V.1985 (ZIP); S-Ustyurt, Kaplankyrskii Reserve [3], sands, 1♀, 9.IV.1987, leg. L. Mitroshina (ZIP), 1♀, 19.IV.1987 (ZIP), 1♀, 8.V.1985 (ZIP), 1♀, 15.V.1985 (ZIP), 1♀, 21.V.1985 (ZIP), 1♂, 1♀, 8.X.1985 (ZIP); Chardzhou Area, Amudaryinskii Reserve, Kabakly [6], 1♀, 4-14.V.1987, leg. F. Zeleev (ZIP), 1♀, 21.V.1987 (ZIP).

Redescription: Measurements (male/female): length of carapace 2.4-2.6/2.1-2.6, length of abdomen 2.6-3.2/2.6-3.2, length of eye field 1.2/1.0-1.2, anterior width of eye field 1.4-1.5/1.2-1.6, posterior width of eye field 1.5-1.6/1.3-1.6.

Male. Carapace dark brown, eye field almost black, covered with small yellow scales. Two longitudinal, narrow, white lines in the middle of anterior part of eye field. White scales bordering posterior edge of eye field. Sparse brown bristles near eyes of row I. Chelicerae brown, without teeth; labium, maxillae and sternum yellowish or brown, brown hairs on sternum. Abdomen dark brown, clothed with yellow, white and greyish scales, brown bristles scattered among them. Abdomen light ventrally. Spinnerets greyish. Legs yellow, their hairs long, grey and brown. Pedipalps yellow. A protuberance at base of palpal femur (Fig. 37A). Bulbus stout and large, embolus rather long, conductor big, bent at tip, tibial apophysis unciform, a large depression corresponding to this apophysis on cymbium (Figs 37B-F and 38A-C).

Female. Like male. Carapace brown, covered with very small grey and yellow scales, sparse brown bristles on eye field. Clypeus with long white hairs. Abdomen lighter than in male, grey with whitish scales. Epigyne rounded, with two oval openings centrally and a single pocket posteriorly (Fig. 39A,B). Internal structures rather weakly sclerotized, as in Fig. 39C.

Remarks: The above is the first description of the male of this species. The palpal structure is similar to that of *Y. kulczynskii* Punda, 1975 [cf. Punda, 1975; Logunov, 1992b] and *Y. horvathi* Chyzer in Chyzer et Kulczynski, 1891 [s. Prószyński, 1968], but the shape of the tibial apophysis is different.

Distribution: Known from Mongolia, Kazakhstan (Barsakelmes Island) and Turkmenistan [Prószyński, 1968; Nenilin, 1985; Mikhailov & Fet, 1994].

Yllenus mirandus sp.n.

Fig. 40.

Material: S-Ustyurt, Kaplankyrskii Reserve [3], 1♀ (holo-

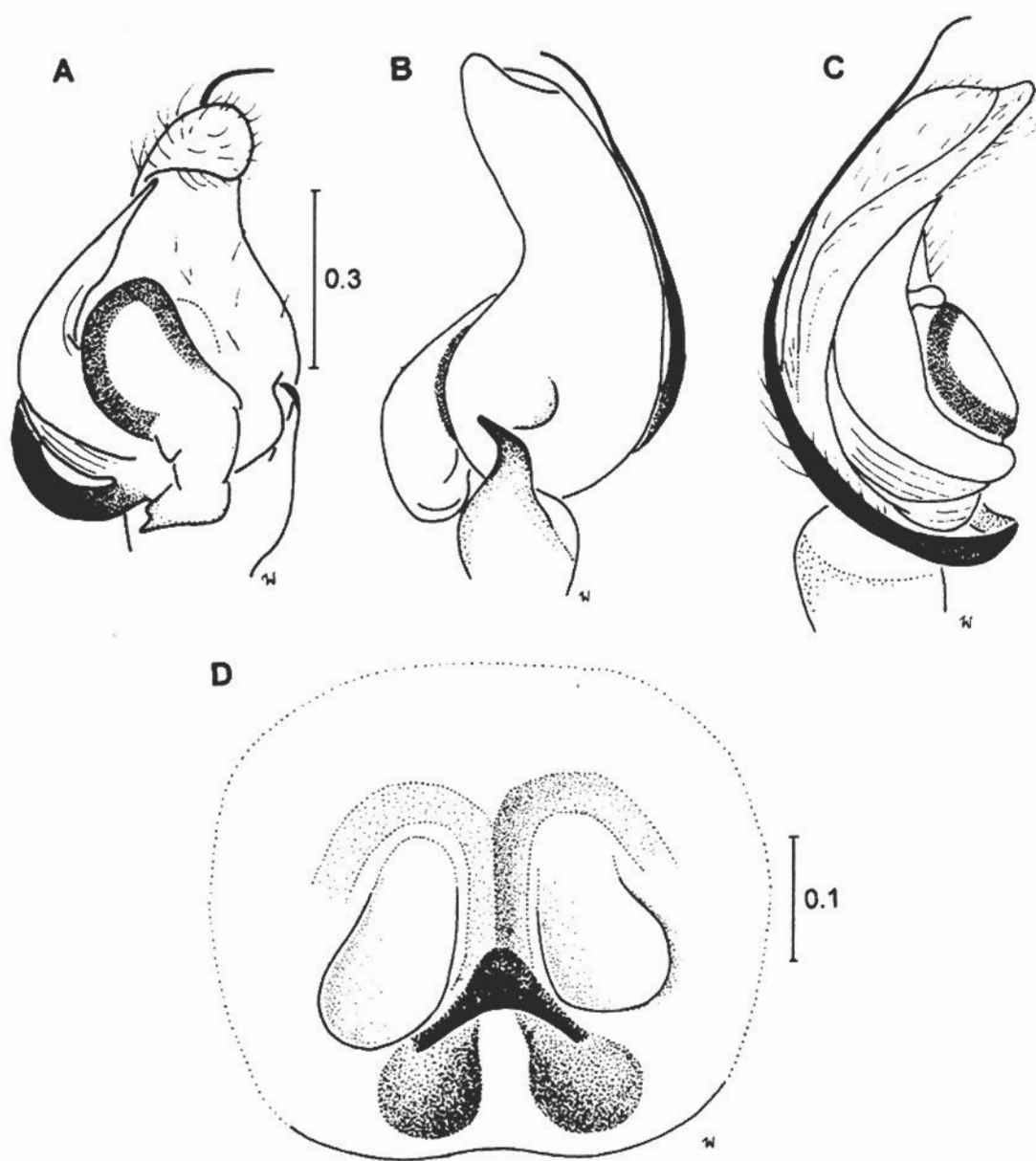


Fig. 36. *Yllenus auspex* (O. Pickard-Cambridge, 1885): A-C — male palp, ventral, dorsal, and lateral views; D — epigyne.

Рис. 36. *Yllenus auspex* (O. Pickard-Cambridge, 1885): A-C — палепа самца, вентрально, дорсально и латерально; D — эпигина.

type), 5.VI.1987, leg. L. Mitroshina (ZIP), 1 ♀ (paratype), 23.V.1985 (ZIP), 1 ♀ (paratype) 8.VI.1985 (ZIP), 1 ♀ (paratype), 16.IV.1986 (ZIP).

Diagnosis: This species is in fact a member of the *albocinctus* species group sensu Prószyński [1968], but it can be easily distinguished by the characteristic epigyne (Fig. 40).

Description: Measurements: length of carapace 1.6-1.7, width of carapace 1.4, height of carapace 0.7-0.8, length of abdomen 1.9-2.3, width of abdomen 1.6, length of eye field 0.7-0.8, anterior width of eye field 1.1-1.2, posterior width of eye field 1.2-1.3.

Male unknown.

Female. Size and shape of body as in other congeners. Carapace brown, with a wide darker eye field. Adherent,

small, white and yellowish-gold scales covering carapace, long brown bristles near eyes. A few white hairs on clypeus. Chelicerae light brown, without teeth, labium and maxillae yellowish, sternum yellowish-grey. Abdomen rounded, greyish-brown with short and yellow scales, abdomen grey ventrally. Spinnerets yellowish-grey. Legs yellow, brown patches at distal ends of their segments. Dense hairs and fewer scales on legs. A small tooth on tarsal claws. Epigyne oval, with a large pocket in posterior part (Fig. 40A-C). Internal structure more simple than in other congeners. Seminal ducts in initial part very weakly sclerotized, spermathecae spherical (Fig. 40D-E).

Yllenus probatus sp.n.

Fig. 41.

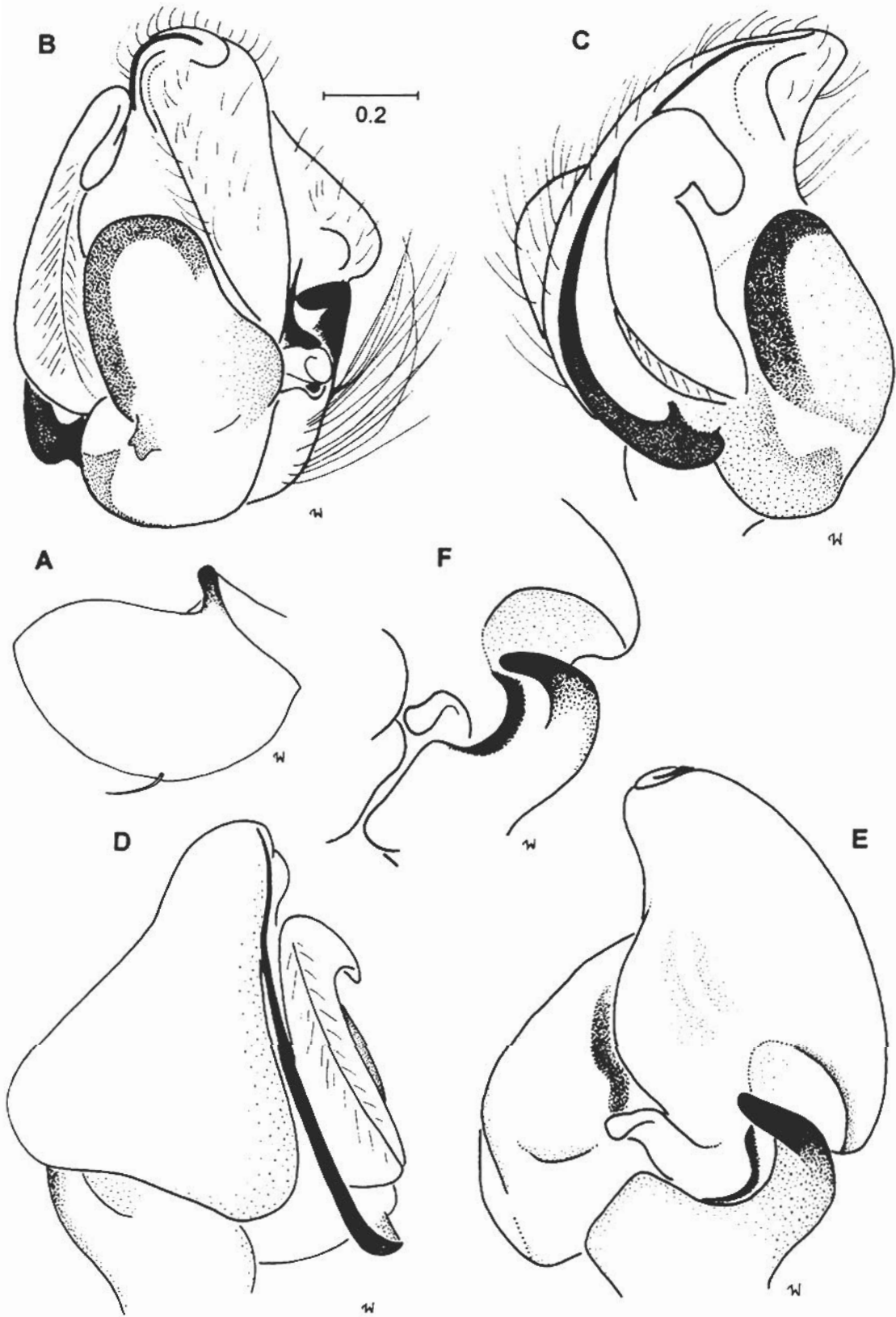


Fig. 37. *Yllenus flavociliatus* Simon, 1895: A — palpal femur; B-E — male palp, ventral, two lateral and a dorsal view; F — tibial apophysis.

Рис. 37. *Yllenus flavociliatus* Simon, 1895: A — бедро пальпы; B-E — пальпа самца, вентрально, дважды латерально и дорсально; F — отросток голени.

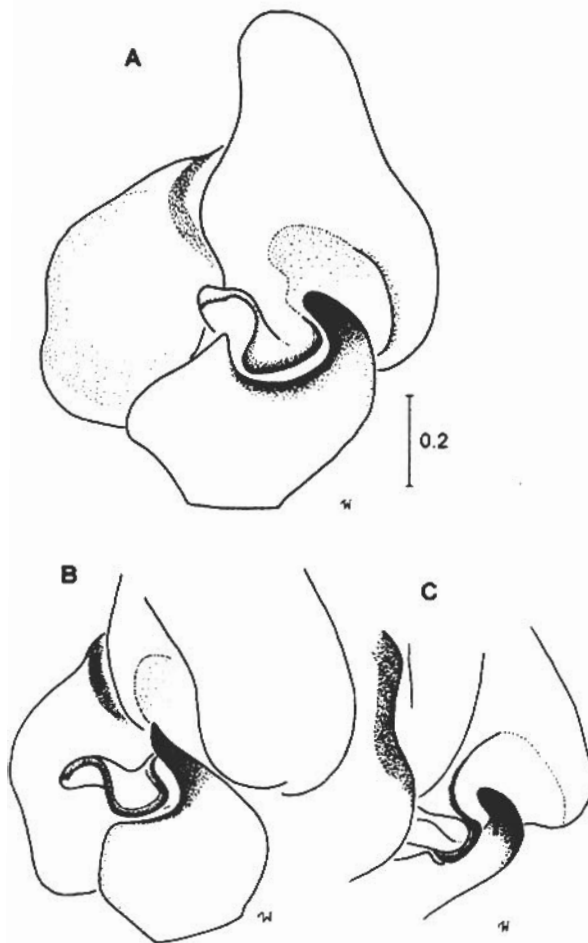


Fig. 38. *Yllenus flavociliatus* Simon, 1895: A-C — tibial apophysis.

Рис. 38. *Yllenus flavociliatus* Simon, 1895: A-C — отросток голени.

Material: Tashauz Area, Kankakyr [5], 1 ♂ (holotype), 13.IV.1985, leg. O. Soyunov (ZIP); S-Ustyurt, Kaplankyrskii Reserve [3], 1 ♂ (palp only), 13.V.1986, leg. L. Mitroshina (ZIP).

Diagnosis: This species belongs to the *albocinctus*-group sensu Prószyński [1968]. The palpal organ is similar to that in *Y. albocinctus* (Kronenberg, 1875), but the shapes of the bulb and protuberance of the cymbium differ.

Description: Measurements: length of carapace 1.6, width of carapace 1.2, height of carapace 0.7, length of abdomen 1.4, width of abdomen 1.2, length of eye field 0.7, anterior width of eye field 1.0, posterior width of eye field 1.1.

Male. Small-sized. Carapace high in cephalic part, dark brown, eye field occupying about half its length. Entire carapace covered with very small white scales. A few long brown bristles on eye field. Clypeus low. Chelicerae dark brown, labium and maxillae brown with light margins, sternum brown. Abdomen rounded, brownish-grey, clothed with short white hairs and not so numerous brown bristles, abdomen greyish ventrally. Spinnerets yellowish. Legs yellowish-grey, at base and tip of their segments with brown rings. Leg hairs brown and white. Palpal femur with a protuberance at base (Fig. 41E). Cymbium rather narrow. Pedipalp as in Fig. 41A-D.

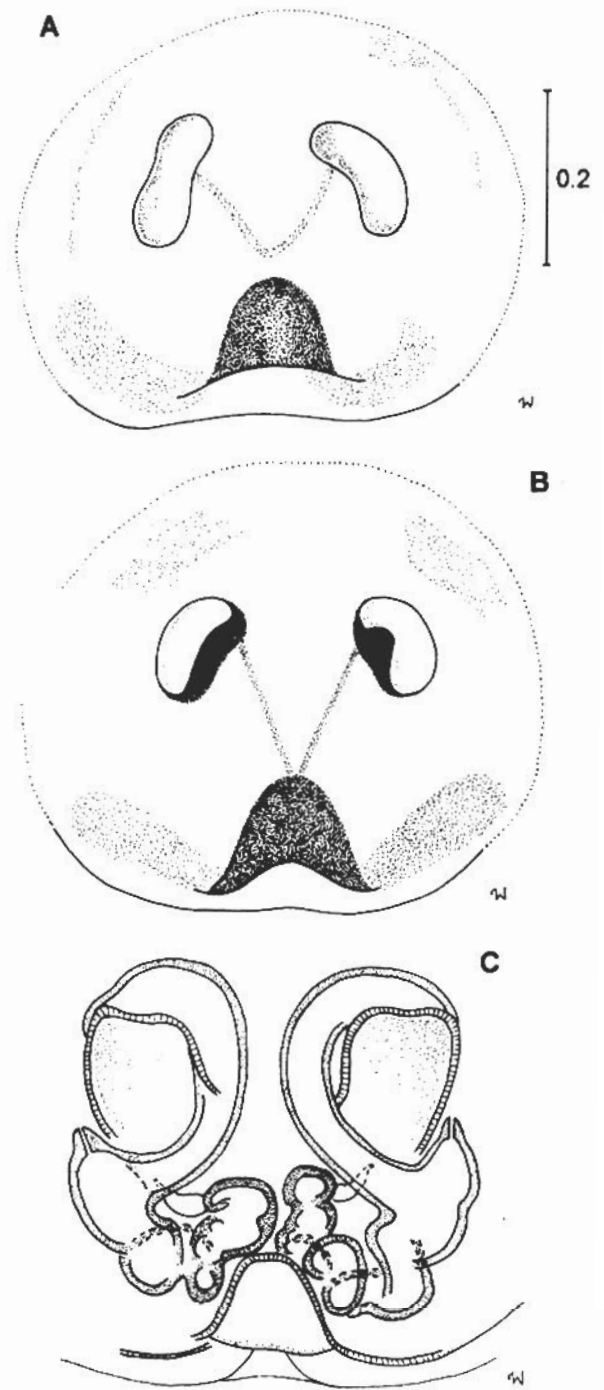


Fig. 39. *Yllenus flavociliatus* Simon, 1895: A, B — epigyne; C — spermathecae.

Рис. 39. *Yllenus flavociliatus* Simon, 1895: A, B — эпигина; C — сперматека.

Female unknown.

Yllenus somonensis Prószyński, 1982 Figs 42-43.

Material: Caspian Sea shore, Kyzyl-Su [1], on *Artemisia* sp., 1 ♂, 3 ♀, 9.VII.1929, leg. V. Pereleshina (ZMMU); S-Ustyurt,

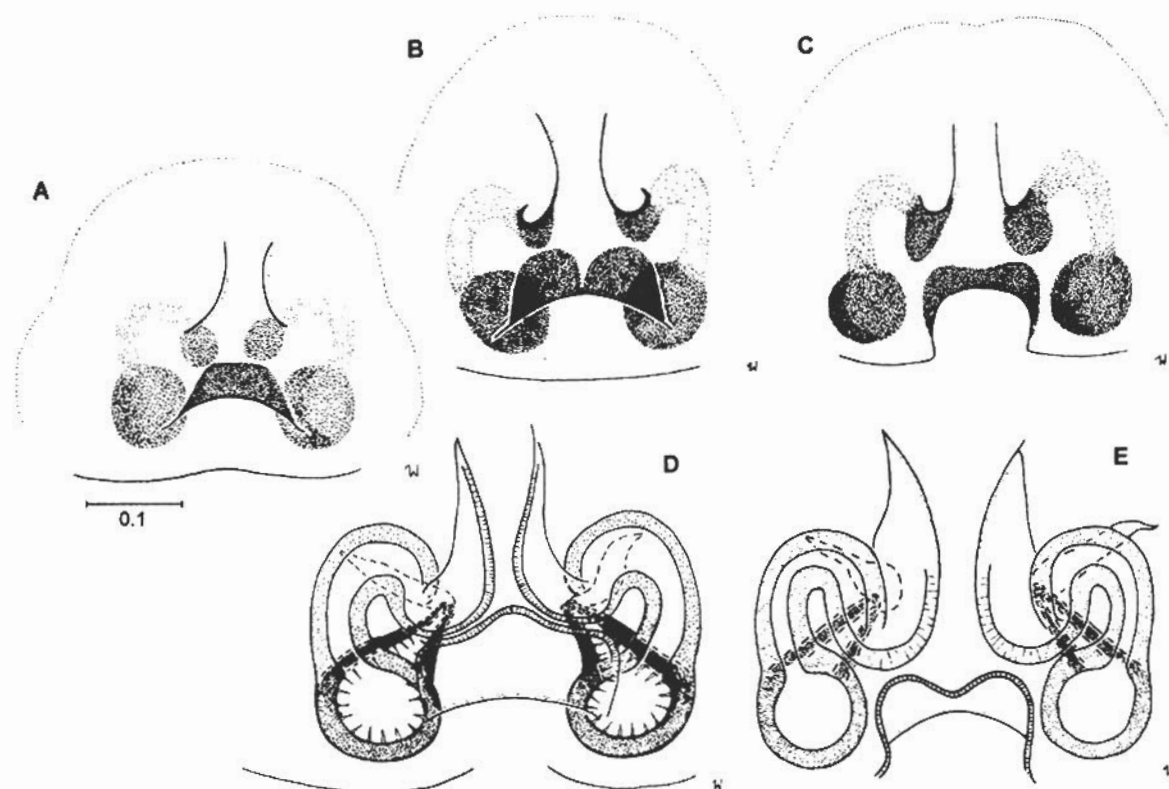


Fig. 40. *Yllenus mirandus* sp.n., holotype (A) and paratypes (B-E): A-C — epigyne; D, E — spermathecae.
Рис. 40. *Yllenus mirandus* sp.n., голотип (A) и паратипы (B-E): A-C — эпигина; D, E — сперматека.

Kaplankyrskii Reserve [3], 1 ♀, 1 juv., 25.V.1985, leg. L. Mitroshina (ZIP), 1 ♂, 1 juv., V.1987 (ZIP).

Description: Measurements (male/female): length of carapace 1.9-2.2 / 1.7-2.5, length of abdomen 1.8-2.1 / 2.1-2.8, length of eye field 0.8 / 0.8-1.0, anterior width of eye field 1.1 / 1.2-1.5, posterior width of eye field 1.2 / 1.4-1.7.

Male. Medium-sized. Carapace convex, dark brown, densely covered with small white scales. Eyes surrounded by white scales, brown bristles on eye field. Clypeus low, with long white hairs. Labium and maxillae yellow. Chelicerae brown, without teeth at retromargin, a single small tooth at promargin. Sternum brown, with white hairs. Abdomen almost spherical, with a dark brown, median, longitudinal stripe and two light lateral ones. Entire abdomen clothed with very dense, short, white hairs and sparse brown bristles. Abdomen covered with light scales ventrally. Spinnerets greyish. Legs yellowish-orange with brown irregular patches on lateral surfaces of femora. Leg hairs long, brown and greyish. Pedipalp with a small process at base of femur (Fig. 42G). Two very short, unciform, tibial apophyses, ventrolateral edge bent at base of cymbium forming a sclerotized plate, embolus thin, rather straight, with a small accompanying conductor (Fig. 42B-F).

Female. Like male. In some specimens, white hairs covering whole eye field and forming two streaks extending from eye of row III to posterior edge of carapace. Epigyne small, poorly sclerotized, with a big, extended, vaginal roof and a large, central, shallow depression

plugged with a waxy secretion (Fig. 43A,B). Internal structures rather simple, as in Fig. 43C.

Distribution: Hitherto known from Mongolia [Prószyński, 1982] and Uzbekistan [Nenilin, 1985], new to the fauna of Turkmenistan.

Yllenus univittatus (Simon, 1871)

Fig. 44.

Material: SW-Kopetdagh Mts, Kara Kala [9], 300 m a.s.l., 1 ♂, 24.V.1985, leg. T. Lukarevskaya (ZIP).

Description: Measurements: length of carapace 2.2, length of abdomen 2.1, length of eye field 0.9, anterior width of eye field 1.3, posterior width of eye field 1.4.

Male. Carapace convex, very dark brown, with a black eye field. White scales on eye field, a few brown bristles near eyes. Labium and maxillae light, chelicerae typical for the genus, dark brown. Sternum light brown, with white hairs. Abdomen clothed with dense white and yellowish hairs, with a longitudinal, wide, dark brown stripe centrally. Abdomen covered with light scales ventrally. Spinnerets yellowish-white. Legs yellow, with darker femora, first legs orange. Leg hairs white and brown. Pedipalp generally similar to that of *Y. somonensis*, but dorsal tibial apophysis bigger, ventral one very small (Fig. 44A-D).

Distribution: The range of this species is poorly known. It was described and recorded from France [s. Prószyński, 1968, 1976], then found in Kalmykia, N-Ciscaucasia [Ponomarev, 1978] and in Turkmenistan [Nenilin, 1985].

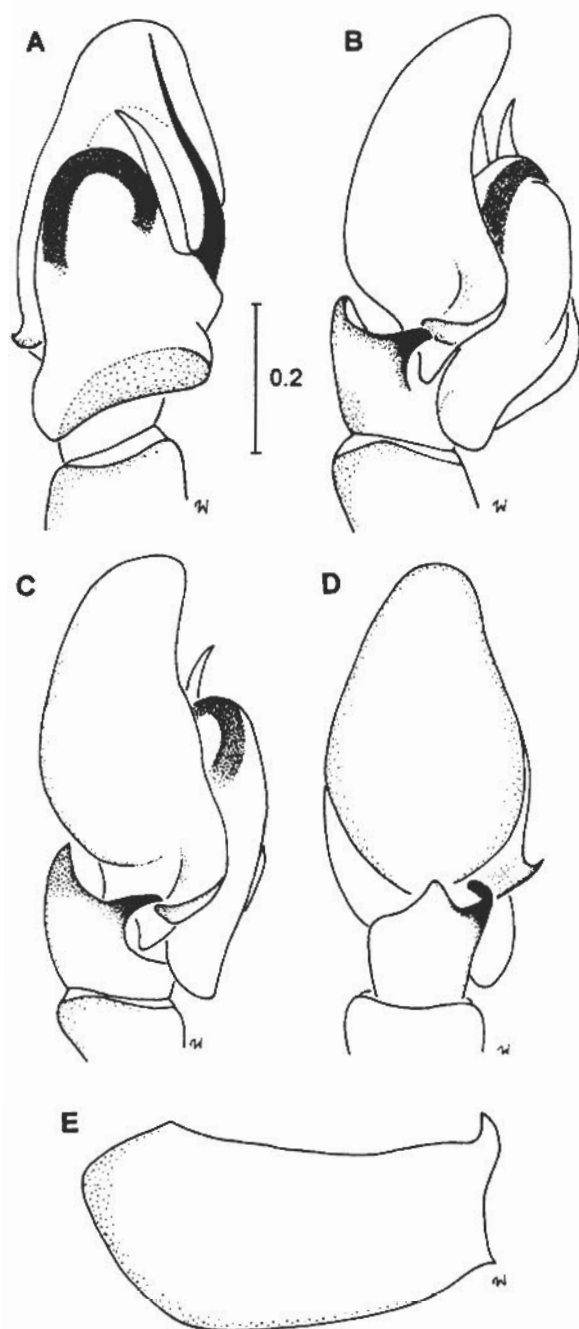


Fig. 41. *Yllenus probatus* sp.n., holotype. A-D — male palp, ventral, two lateral and a dorsal view; E — palpal femur.

Рис. 41. *Yllenus probatus* sp.n., голотип: A-D — палепа самца, вентрально, дважды латерально и дорсально; E — бедро палепы.

Acknowledgments

I am very grateful to Dr. D.V. Logunov (Institute for Animal Systematics and Ecology, Siberian Division of the Russian Academy of Sciences) for his valuable remarks and discussion of some taxonomic problems during the preparation of this paper. Dr. S.I. Golovatch (Moscow) kindly checked the En-

glish of an earlier draft. I would like to express my sincere thanks to Dr. V.I. Ovtsharenko, Dr. K.G. Mikhailov and again to Dr. D.V. Logunov, the keepers of the ZIP, ZMMU and ISE arachnid collections, respectively, for the loans of material for study.

References

- Alekseev Yu.I., Kamalov K. & O.D. Niyazov. 1977. [Soil and ground fauna of the cotton field in the lower reaches of Murgab River] // Fauna i ekologiya nasekomykh Turkmenii. Ashkhabad, "Ilym" Publ. P.30-33 [in Russian].
- Alicata P. & T. Cantarella 1987. The genus *Ballus*: a revision of the European taxa described by Simon together with observations on the other species of the genus // Animalia. Vol.14. Nos 1/3. P.35-63.
- Andreeva E.M. 1969. [Materials on the spider fauna of Tajikistan. V. Salticidae] // Izv. Otd. Biol. nauk. Tadzhik. Akad. nauk, Dushanbe. T.4. P.89-93 [in Russian].
- Andreeva E.M. 1976. [The Spiders of Tajikistan]. Dushanbe, "Donish" Publ. 195 p. [in Russian].
- Andreeva E.M., Hęciak S. & J. Prószyński. 1984. Remarks on *Icius* and *Pseudicius* (Araneae, Salticidae) mainly from Central Asia // Ann. Zool. PAN. Vol.37. No.13. P.349-376.
- Andreeva E.M., Kononenko A.P. & J. Prószyński. 1981. Remarks on genus *Mogrus* Simon, 1882 (Aranei, Salticidae) // Ibid. Vol.36. No.4. P.85-104.
- Danilov S.N. & D.V. Logunov. 1993. Faunistic review of the jumping spiders of Transbaikalia (Aranei Salticidae) // Arthropoda Selecta. Vol.2. No.4. P.25-39.
- Dunin P.M. 1979. [Materials on the spider fauna (Salticidae) of Azerbaijan] // Ulchyonye zapiski Azerbajdzhansk. univ., (biol.). T.1. P.35-40 [in Russian].
- Dunin P.M. 1989. [Fauna and altitudinal distribution of spiders (Arachnida, Aranei) of the Azerbaijan part of the southern slope of the Caucasus Major] // Fauna i ekologiya paukov i skorpionov. Moscow, "Nauka" Publ. P.31-39 [in Russian].
- Fet V.Ya. 1983. [The fauna of Aranei of the southwestern Kopetdagh] // Entom. obozr. T.62. No.4. P.835-844 [in Russian].
- Fet V.Ya. 1985. [Zoogeographical analysis of the spider fauna of the southwestern Kopetdagh] // Fauna i ekologiya paukov SSSR. Trudy Zool. inst. Leningrad. T.139. P.72-77 [in Russian].
- Hęciak S. & J. Prószyński. 1983. Remarks on *Langona* Simon (Araneae, Salticidae) // Ann. Zool. PAN. Vol.37. No.4. P.207-233.
- Hu J.L. & Wu W.G. 1989. [Spiders from agricultural regions of Xinjiang, Uygur Autonomous Region, China (Arachnida, Araneae)]. Shandong Univ. Publ. House. 435 p. [in Chinese].
- Kharitonov D.E. 1946. [New forms of spiders in the fauna of the USSR] // Izv. est-nauchn. inst. Molotovsk. gos. univ. T.12. No.3. P.19-35 [in Russian].
- Kharitonov D.E. 1969. [Materials on the spider fauna of the USSR] // Uchyonye zapiski Permsk. gos. univ., biol. T.179. P.59-132 [in Russian].
- Kroneberg A.I. 1875. [Spiders Araneae] // Puteshestvie v Turkestan A.P. Fedchenko. T.2. Pt.4 / Izv. imp. Obshch. lyub. estestv. antrop. i etnogr. T.19. No.3. P.1-58 [in Russian].
- Kulczyński W. 1895. Araneae a Dre G. Horvath in Bessarabia, Cherseneso Taurico, Transcaucasia et Armenia Russica collectae // Termes. Fuzetek. T.18. P.3-38.
- Kulczyński W. 1911. Fragmenta Artachnologica (IX). XVI. Araneorum species nonnullae in Syria a rev. P. Bovier-Lapierre et in Palaestina a Rev. E. Schmitz collectae. XVII. Araneae nonnullae Europae // Bull. Acad. Sc. Cracov., Cl. Sc. math. et nat. (B). Krakow. P.12-75.

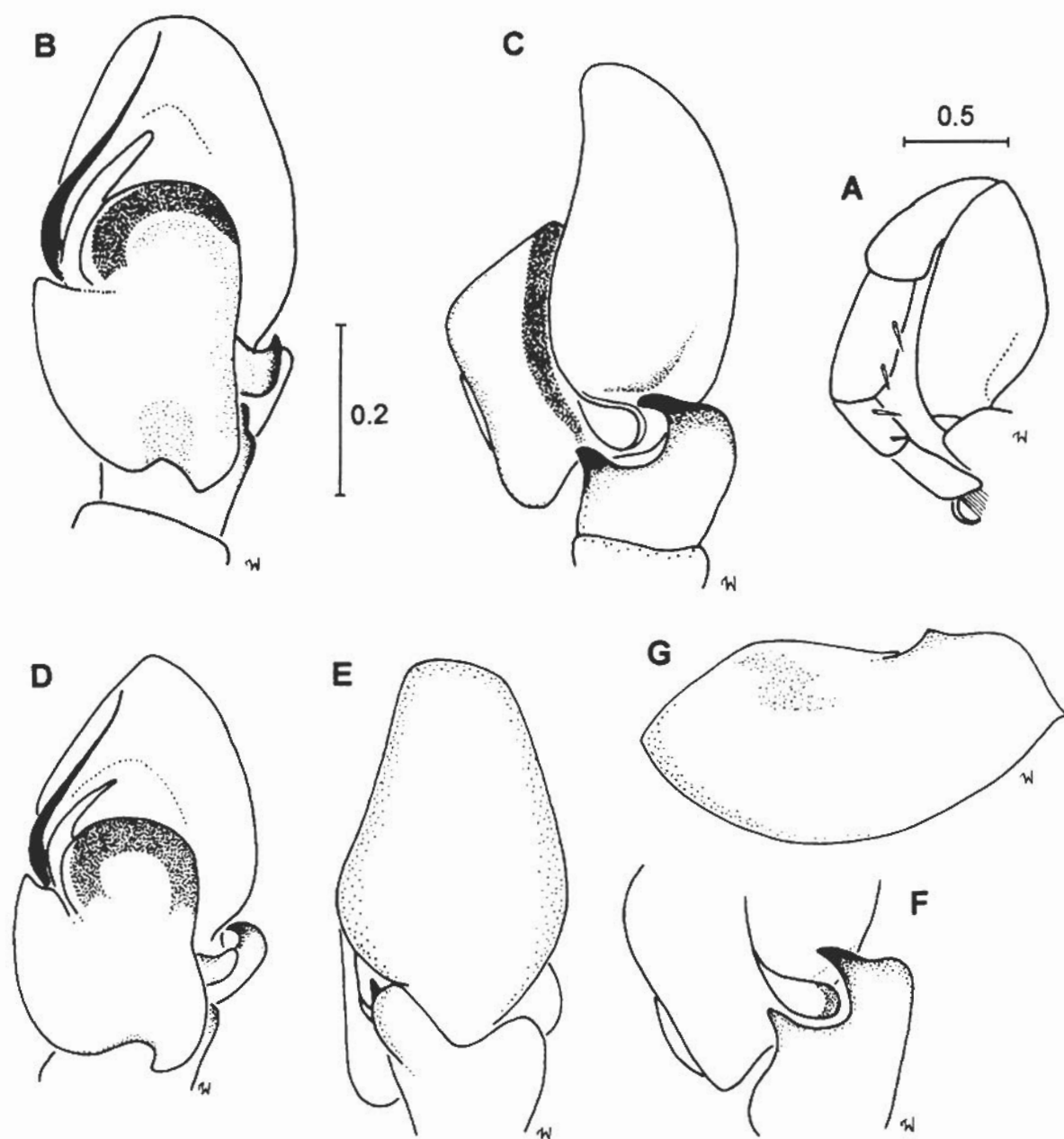


Fig. 42. *Yllenus somonensis* Prószyński, 1982: A — first leg; B-E — male palp, two ventral, lateral and dorsal views; F — tibial apophysis; G — palpal femur.

Рис. 42. *Yllenus somonensis* Prószyński, 1982: A — первая нога; B-E — палепа самца, дважды вентрально, латерально и дорсально; F — отросток голени; G — бедро пальпы.

Kuznetsov G.T. & V.Ya. Fet. 1986. [Materials on the spider fauna of the Kopetdagh Mts] // Priroda Tsentralnogo Kopetdaga. Ashkhabad, "Ylym" Publ. P.48-67 [in Russian].

Logunov D.V. 1992a. Salticidae of Middle Asia (Aranei). I. New species from the genera *Heliophanus*, *Salticus* and *Sitticus*, with notes on new faunistic records of the family // Arthropoda Selecta. Vol.1. No.1. P.51-67.

Logunov D.V. 1992b. The spider family Salticidae (Araneae) from Tuva. II. An annotated chesk list of species // Ibid. Vol.1. No.2. P.47-71.

Logunov D.V. 1993a. Notes on two salticid collections from China (Araneae Salticidae) // Ibid. Vol.2. No.1 P.49-59.

Logunov D.V. 1993b. New data on the jumping spiders (Aranei Salticidae) of Mongolia and Tuva // Ibid. Vol.2. No.2. P.47-53.

Logunov D.V. 1995a. The genus *Mogrus* (Araneae: Salticidae) of Central Asia // Europ. J. Entom. Vol.92. No.3. P.589-604.

Logunov D.V. 1995b. New and little known species of the jumping spiders from Central Asia (Araneae, Salticidae) // Zoosyst. Ross. Vol.3. No.2. P.237-246.

Logunov D.V. in press. A review of the genus *Phlegma* Simon, 1876 (Araneae, Salticidae: Aelurillinae) in the fauna of the ex-USSR // Genus. Vol.7.

Logunov D.V., Cutler B. & Yu.M. Marusik. 1993. A review of the genus *Euophrys* C.L. Koch in Siberia and the Russian Far East

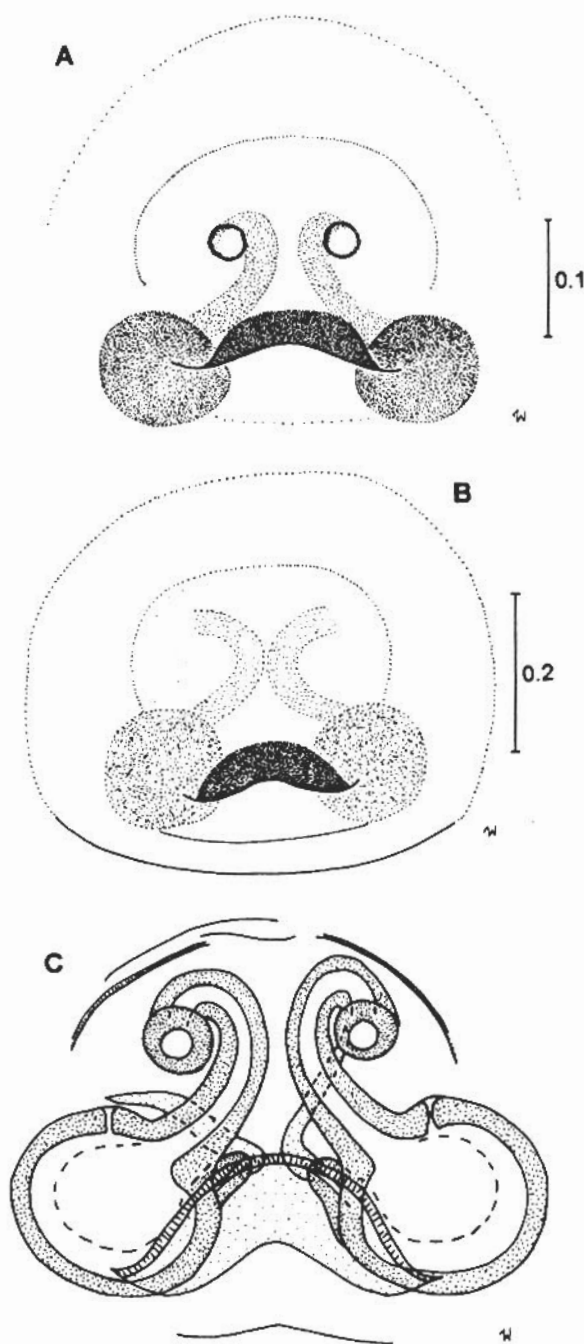


Fig. 43. *Yllenus somonensis* Prószyński, 1982. A, B — epigyne; C — spermathecae.

Рис. 43. *Yllenus somonensis* Prószyński, 1982: A, B — эпигина; C — сперматека.

- (Araneae: Salticidae) // Ann. Zool. Fenn. Vol.30. P.101-124.
 Logunov D.V. & Yu.M. Marusik. 1994. New data on the jumping spiders of the Palearctic fauna (Aranei Salticidae) // Arthropoda Selecta. Vol.3. Nos 1-2. P.101-115.
 Logunov D.V. & W. Wesolowska. 1995. New data on some poorly known Palearctic species of *Sitticus* (Araneae: Salticidae) // Genus. Vol.6. No.2. P.163-175.
 Marusik Yu.M. 1990. [The spider genus *Chalcoscirtus* (Aranei, Salticidae) in the USSR fauna. Communication 1] // Zool. zhurnal. T.69. No.6. P.45-56 [in Russian].

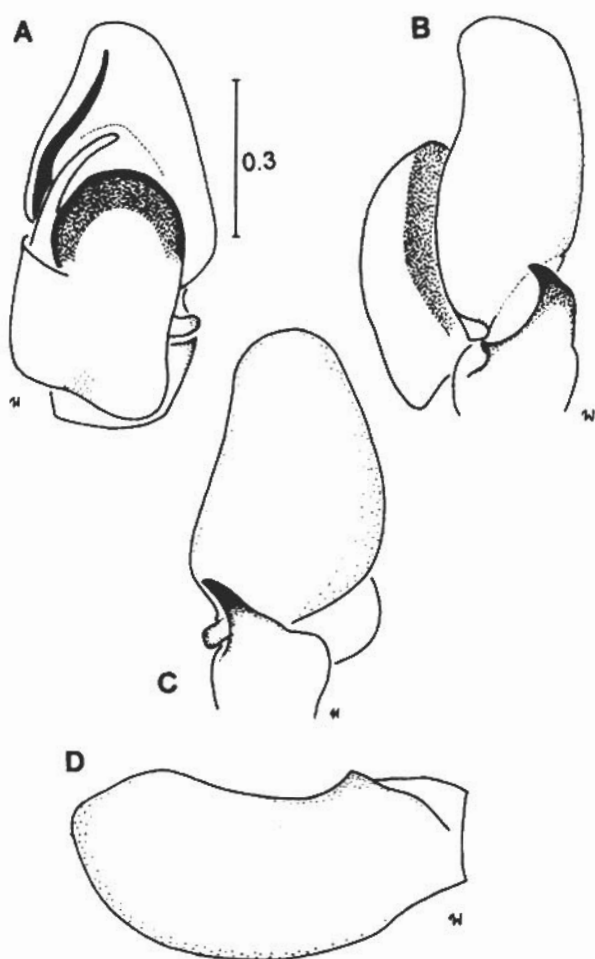


Fig. 44. *Yllenus univittatus* (Simon, 1871): A-C — male palp, ventral, lateral and dorsal views; D — palpal femur.

Рис. 44. *Yllenus univittatus* (Simon, 1871): A-C — палепа самца, вентрально, латерально и дорсально; D — бедро палепы.

- Marusik Yu.M. 1991a. [The spider genus *Chalcoscirtus* (Aranei, Salticidae) from the USSR. Communication 2] // Ibid. T.70. No.1. P.19-31 [in Russian].
 Marusik Yu.M. 1991b. [The spider genus *Chalcoscirtus* (Aranei, Salticidae) from the USSR. Communication 3] // Ibid. T.70. No.2. P.22-29 [in Russian].
 Mikhailov K.G. & V. Fet. 1994. Fauna and zoogeography of spiders (Aranei) of Turkmenistan // Biogeography and Ecology of Turkmenistan. Kluwer Acad. Publ. P.499-524.
 Nenilin A.B. 1984a. [Materials on the fauna of the spider family Salticidae of the USSR. I. Catalogue of Salticidae of Middle Asia] // Fauna i ekologiya paukoobraznykh. Perm Univ. Publ. P.6-37 [in Russian].
 Nenilin A.B. 1984b. [On the taxonomy of spiders of the family Salticidae in the fauna of the USSR and adjacent countries] // Zool. zhurn. T.63. No.8. P.1175-1180 [in Russian].
 Nenilin A.B. 1985. [Materials on the fauna of the spider family Salticidae of the USSR. II. Results of the study in the USSR] // Fauna i ekologiya paukov SSSR. Trudy Zool. inst. Leningrad. T.139. P.129-134 [in Russian].
 Ovtsharenko V.I. & V.Ya. Fet. 1980. [Fauna and ecology of spiders (Aranei) of the Badkhyz (Turkmenian SSR)] // Entomol. obozr. Vol.59. No.2. P.442-447 [in Russian].

- Peckham G.W. & E.G. Peckham. 1903. New species of the family Attidae from South Africa, with notes on distribution of the genera found in the Ethiopian Region // Trans. Wisc. Acad. Sci. Arts Let. Vol.14. No.1. P.173-278.
- Pickard-Cambridge O. 1872. General list of spiders of Palestine and Syria, with descriptions of numerous new species and characters of two new genera // Proc. Zool. Soc. Lond. P.212-354.
- Ponomarev A.V. 1978. [An interesting spider genus *Yllenus* Simon (Aranei: Salticidae) in the USSR fauna, with the description of a new species // Izv. Severo-Kavkazsk. nauchn. Tsentra Vysshei Shkoly. No.3. P.96-98 [in Russian].
- Prószyński J. 1962. Redescription of *Sitticus godlewskii* (Kulczynski, 1895) (Araneida, Salticidae) and remarks on its systematic position // Bull. Acad. polon. Sci. T.10. No.2. P.65-68.
- Prószyński J. 1966. Remarks on the systematic position of *Hemellatus iranensis* Roewer (Arachn., Araneae) // Senckenberg. biol. Bd.47. H.6. S.463-467.
- Prószyński J. 1968a. Systematic revision of the genus *Yllenus* Simon, 1868 (Araneida, Salticidae) // Ann. Zool. PAN. Vol.26. No.19. P.409-494.
- Prószyński J. 1971. Notes on systematics of Salticidae (Arachnida, Aranei) I-VI // Ibid. Vol.28. No.12. P.227-255.
- Prószyński J. 1973. Systematic studies on East Palearctic Salticidae II. Redescriptions of Japanese Salticidae of the Zoological Museum of Berlin // Ibid. Vol.30. No.5. P.97-128.
- Prószyński J. 1976. Studium systematyczno-zoogeograficzne nad rodziną Salticidae (Aranei) Regionów Palearktycznego i Nearktycznego. Rozprawa Naukowa, WSRP. Siedlce. 260 p. [in Polish].
- Prószyński J. 1978. Araneae: Fam. Salticidae. Genera *Aclurillus*, *Langona*, *Phlegma* and *Cyrtus*. Ergebnisse der Bhutan-Expedition 1972 des Naturhistorischen Museums in Basel // Entom. Basil. Bd.3. P.7-21.
- Prószyński J. 1979. Systematic studies on East Palearctic Salticidae III. Remarks on Salticidae of the USSR // Ann. Zool. PAN. Vol.34. No.11. P.299-369.
- Prószyński J. 1982. Salticidae (Araneae) from Mongolia // Ann. hist-nat. Mus. natn. Hung. T.74. P.273-294.
- Prószyński J. 1983. Tracing the history of a genus from its geographical range by the example of *Sitticus* (Arachnida: Araneae: Salticidae) // Verh. naturwiss. Ver. Hamburg. Bd.26. P.161-179.
- Prószyński J. 1984. Atlas rysunków diagnostycznych mniej znanych Salticidae. Zeszyty Naukowe WSRP. Siedlce. 177 pp. [in Polish].
- Prószyński J. 1987. Atlas rysunków diagnostycznych mniej znanych Salticidae. 2. Zeszyty Naukowe WSRP. Siedlce. 172 pp. [in Polish].
- Prószyński J. 1989. Salticidae (Araneae) of Saudi Arabia // Fauna of Saudi Arabia. Vol.10. P.31-64.
- Prószyński J. 1990. Catalogue of Salticidae (Araneae). WSRP. Siedlce. 366 pp.
- Prószyński J. 1992. Salticidae (Araneae) of the Old World and Pacific Islands in several US collections // Ann. Zool. PAN. Vol.44. P.87-163.
- Prószyński J. 1993. Salticidae (Araneae) of Saudi Arabia II // Fauna of Saudi Arabia. Vol.13. P.27-54.
- Prószyński J. & K. Zochowska. 1981. Redescriptions of the O.P.-Cambridge Salticidae (Araneae types from Yarkand, China) // Polsko Pismo ent. T.51. P.13-25.
- Punda H. 1975. Remarks on the genus *Yllenus* Simon, 1868 (Aranei: Salticidae) // Ann. Zool. PAN. Vol.33. P.35-44.
- Richman D.B. & B. Cutler. 1978. A list of the jumping spiders (Araneae: Salticidae) of the United States and Canada // Peckhamia, Vol.1. No.5. P.82-100.
- Roewer C.F. 1955. Die Araneae des österreichischen Iran-Expedition 1949-1950 // Sitz-Ber. Akad. Wiss., math-naturw. Kl., Wien. Bd.164. S.751-782.
- Sabirova O.R. 1975. [On the knowledges on spiders (Araneida) of the Repetek Reservation] // Izv. Akad. nauk Turkmensk. SSR, biol. Nr.6. P.79-82 [in Russian].
- Simon E. 1889. Arachnidae transcaspiæ ab Radde, Walter et Conchin inventæ // Verh. zool.-bot. Ges. Wien. Bd.39. P.373-386.
- Song D.X. 1987. [Spiders from agricultural regions of China (Arachnida: Araneae)] Beijing, Agr. Publ. House. 376 p. [in Chinese].
- Spassky S. 1939. Araneae palæarctica novae. IV. // Folia zool. et hydrobiol. Vol.9. No.2. P.299-308.
- Strand E. 1915. Dritte Mitteilung ueber Spinnen aus Palestina, gesammelt von Herrn Dr. J. Aharoni // Arch. Naturg. Bd.79A. H.6. S.131-171.
- Thorell T. 1875. Verzeichniss südrussischer Spinnen // Horae Soc. ent. Ross. T.11. P.39-122.
- Zabka M. 1981. Salticidae from Kashmir and Ladakh (Arachnida: Araneae) // Senckenberg. biol. Bd.61. H.5-6. S.407-413.
- Zabka M. 1985. Systematic and zoogeographic study on the family Salticidae (Araneae) from Viet-Nam // Ann. Zool. PAN. Vol.39. No.11. P.1-485.
- Zhou C.D. & D.X. Song. 1988. Notes on some jumping spiders from Xinjiang, China // J. August 1st Agric. Coll. Vol.37. P.1-14.
- Wanless F.R. 1984. A revision of the spider genus *Cyrtus* (Araneae: Salticidae) with the description of a new presumptive pheromone dispersing organ // Bull. Brit. Mus. (Nat. Hist.), Zool. Vol.47. No.7. P.445-481.
- Wesołowska W. 1981. Salticidae (Aranei) from North Korea, China and Mongolia // Ann. Zool. PAN. Vol.36. No.3. P.45-83.
- Wesołowska W. 1986. A revision of the genus *Heliophanus* C.L. Koch, 1833 (Aranei: Salticidae) // Ibid. Vol.40. No.1. P.1-254.
- Wesołowska W. & A. van Harten. 1994. Jumping spiders (Salticidae, Araneae) from the Yemen. Yemeni-German Plant Protection Project. Sana'a. P.1-86.
- Wunderlich J. 1991. The spider fauna of the Macaronesian Islands // Beitr. Araneol. Bd.1. P.1-619.