

Contribution to the Middle Asian fauna of the spider genus *Thanatus* C. L. Koch, 1837 (Aranei: Philodromidae)

К познанию пауков рода *Thanatus* C. L. Koch, 1837 фауны Средней Азии (Aranei: Philodromidae)

O. V. Lyakhov
О. В. Ляхов

Kataeva street 11, apt. 42, Pavlodar Kazakhstan.
Ул. Катаева, д.13, кв. 42, Павлодар Казахстан.

KEY WORDS: Philodromidae, *Thanatus*, redescrptions, faunistics, Middle Asia.

КЛЮЧЕВЫЕ СЛОВА: Philodromidae, *Thanatus*, переописания, фаунистика, Средняя Азия.

ABSTRACT: A short synopsis of 10 *Thanatus* species that prove to occur in Middle Asia is provided. One species, *Thanatus fabricii* (Audouin, 1827), is recorded in Middle Asia for the first time. New faunistic records and redescrptions of two poorly-known species, *Thanatus fabricii* and *Th. kitabensis* Charitonov, 1946, are given as well. All the species reviewed are illustrated.

РЕЗЮМЕ: Приводится краткая сводка по 10 видам рода *Thanatus*, встречающихся в Средней Азии. Один вид, *Thanatus fabricii* (Audouin, 1827), впервые отмечен для фауны Средней Азии. Также даны новые фанистические находки и переописания двух малоизвестных видов: *Th. fabricii* и *Th. kitabensis* Charitonov, 1946. Все приводимые виды иллюстрированы.

Introduction

The philodromid fauna of Middle Asia still remains to be virtually unexplored, with no special study hitherto devoted to either the whole family or to its separate genera, including *Thanatus* C.L. Koch, 1837.

The first data on *Thanatus* of the areas in question are those given in Kroneberg [1875]. In the first catalogues of the spiders in the USSR fauna [Kharitonov, 1932, 1936], only four *Thanatus* species were listed for Middle Asia, viz. *T. albini* (Savigny & Audouin, 1827), *T. arenarius* Thorell, 1872, *T. formicinus* (Clerck, 1758), and *T. imbecillus* L. Koch, 1878. At present, however, the *Thanatus* fauna of Central Asia amounts to no less than 11 valid species [Logunov, 1996; Mikhailov, 1997], many of these being either poorly-known or recorded from a few localities only. Some of the records, e.g., *T. rayi* Simon, 1875 in the E-Kazakhstan Area [Savelyeva, 1970] or *T. albini* in Uzbekistan [Kroneberg, 1875], seem to have been based on misidentifications and thus require confirmation. At least I have failed to find these species in the available collections.

The present study adds to the knowledge of *Thanatus* in the fauna of Middle Asia, with 10 species treated here. The study is based on an examination of 382 newly collected adult specimens kept in the Siberian Zoological Museum of the Institute for Systematics and Ecology of Animals, Novosibirsk, Russia (ISEA). Some comparative material has been received on loan from the Department of Zoology of the Perm State University, Perm, Russia (PSUN) and the Zoological Institute, St. Petersburg, Russia (ZISP). The material analysed has largely been taken during the last decade, with older collections only involved in a few cases.

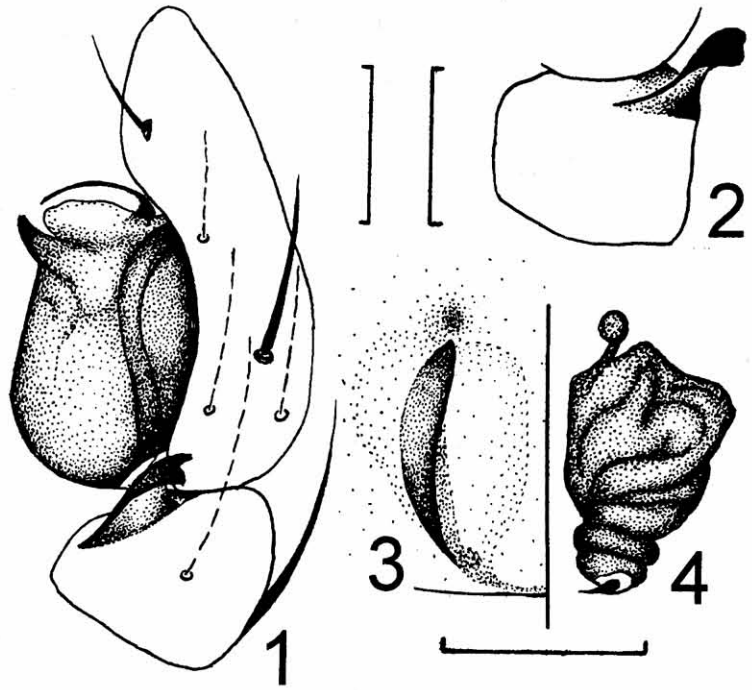
The following abbreviations are used in the text: ALE — anterior lateral eye, AME — anterior medial eye, c¹ — single spine, c² — double spine, CL — carapace length, CW — carapace width, d — dorsal, DRT — dorsal row of trichobotria, IMEL — index of maximal extension of legs (=ratio of longest leg to shortest one), Fm — femur, MOA — medial ocular area, MOA-L — length of MOA, MOA-WA — anterior width of MOA, MOA-WP — posterior width of MOA, Mt — metatarsus, PLE — posterior lateral eye, PME — posterior medial eye, pr — prolateral, prap — proapical, prd — pro-dorsal, Pt — patella, RTA — retrolateral tibial apophysis, rt — retrolateral, Tb — tibia, Tr — tarsus, v — ventral, VTA — ventral tibial apophysis.

Collectors' names are abbreviated as follows: A.K. — Dr. A. P. Kononenko; A.Z. — Dr. A. A. Zyuzin; O.L. — Mr. O. V. Lyakhov.

The species group arrangement is that adopted by Logunov [1996]. The format of description (measurements and chaetotaxy) and terminology follow Schick [1965] and Ono [1988], with some modifications. Numerical data are presented as follows: the first figure is the minimum value, the second the average, and the third the maximum. The first trio of figures belongs to males, the second to females. The number of analysed males and females is given in brackets. All measurements are in mm.

Figs 1–4. Copulatory organs of *Thanatus arenarius* Thorell, 1872: 1 — male palp, retrolateral view; 2 — tibial apophysis, dorsal view; 3 — epigyne; 4 — spermatheca. Scale: 0.25 mm.

Рис. 1–4. Копулятивные органы *Thanatus arenarius* Thorell, 1872: 1 — палец самца, ретролатерально; 2 — вырост голени, дорзально; 3 — эпигина; 4 — сперматека. Масштаб: 0,25 мм.



A survey of species

Genus *Thanatus* C.L. Koch, 1837

The *bungei* group

Thanatus constellatus Charitonov, 1946 Figs 11–16.

MATERIAL. KAZAKHSTAN: 1 ♂ (ISEA), Dzhambul [=Zhambyl] Area, Moynkum Distr., Khantau Mts, ca. 6 km SE of Khantau, 9–11.06.1990, A.Z.; 4 ♂♂ (ISEA), same area, Krasnogorka Distr., ca. 18 km N of Kenen, Chu-Ili Mts, 15.06.1990, A.Z. — UZBEKISTAN: 3 ♂♂ (ISEA), Bukhara Area, Karakul' Distr., ca. 45 km SWW of Bukhara, 2.05.1976, A.K.; 1 ♂, 1 ♀ (PSUN; lectotype and paralectotype of *T. constellatus*), Kashkadarya Area, Yakkabag Distr., near Gul'dara [=Gyul'dar], "Ugun" and near Koka-Bulak [=Kokbulak], 7–14.07.1942, D. M. Fedotov; 1 ♀ (PSUN), same area and distr., near Ishkent, 26.04.1942, D. M. Fedotov; 6 ♂♂, 10 ♀♀ (ISEA), Surkhandarya Area, Baisun Distr., near Derbent, 15.05.1994, O.L.; 27 ♂♂, 6 ♀♀ (ISEA), Surkhandarya Area, Sariasia Distr., Babatagh Mt. Range, 5–10 km W of Ak-Mechet', 06.1994, O.L. — KYRGHYZSTAN: 5 ♂♂, 6 ♀♀ (ISEA), Osh Area, Dzhany-Dzhol Distr., ca. 8 km N of Tash-Kumyr, Karatyt canyon, 22–25.06.1992, A.Z. — TAJIKISTAN: 1 ♂ (ISEA), Kurgan-Tyube Area, Dzhalikul' Distr., Aktau Mt. Range, Vakhsh River Valley, near Garavuti, 27.04.1973, A.K.

NOTES. The present data refine the distribution of *T. constellatus* in Middle Asia [cf. Logunov, 1996]. The species is recorded in Kyrgyzstan and Tajikistan for the first time, while Tajikistan provides its southernmost locality.

The *formicinus* group

Thanatus fabricii (Audouin, 1827) Figs 17–23.

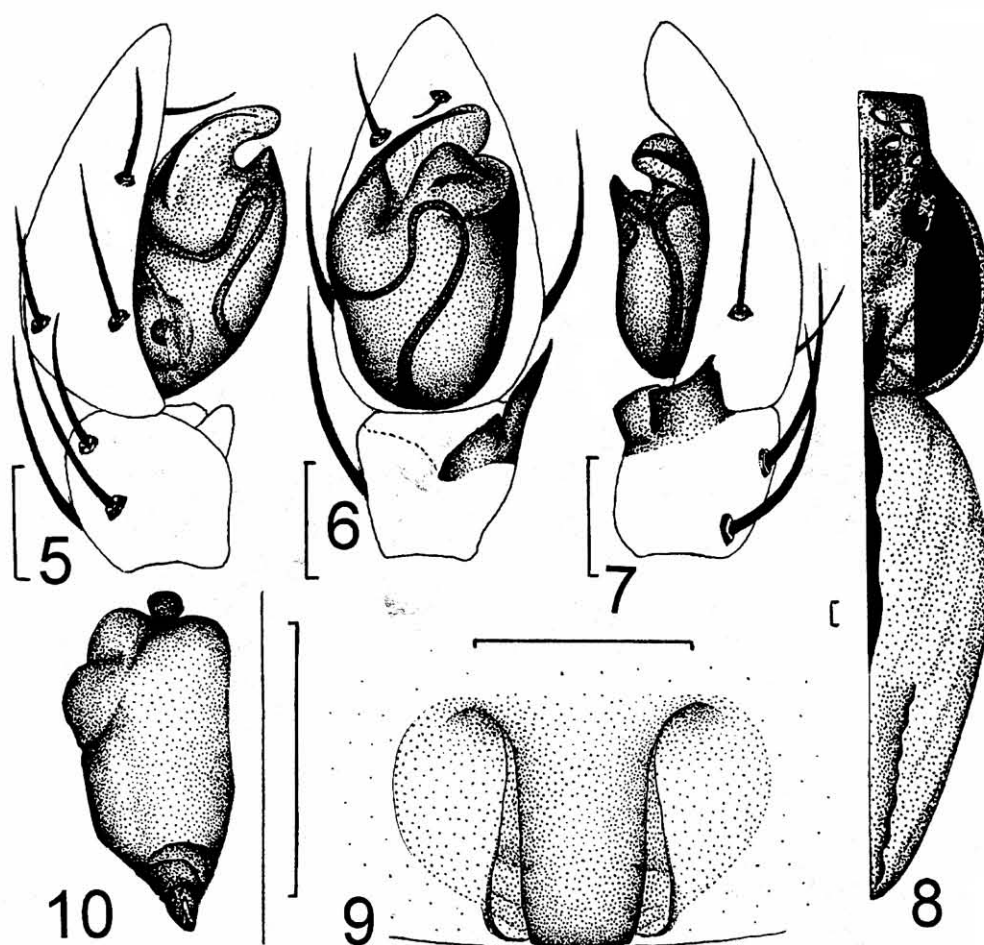
MATERIAL. UZBEKISTAN: 7 ♂♂, 3 ♀♀ (ISEA), Navoi Area, Uchkuduk Distr., Kyzyl-Kum Desert, Bukantau Mt. Range,

foothills of Mt. Irlir, under stone, 7.05.1976, A.K.; 3 ♂♂ (ISEA), Bukhara Area, Gazli Distr., Kyzyl-Kum Desert, Kul'dzhuktau Mt. Range, ca. 6 km E of Dzhang'el'dy, drift sands, 05.1994, O.L.; 4 ♂♂, 2 ♀♀ (ISEA), Surkhandarya Area, Sariasia Distr., foothills of Babatagh Mt. Range, ca. 4 km W of Ak-Mechet', bank of Kafirnigan River, 05.1994, O.L. — TURKMENISTAN: 2 ♂♂ (ISEA), Chardzhou Area, Chardzhou Distr., Repetek Research Station, *Haloxylon* desert woodland (barkhan sands), 27.03.1990, O.L.; 1 ♂ (ISEA), same locality, 27.03.1991, O.L. — TAJIKISTAN: 1 ♂, 3 ♀♀ (ISEA), Kurgan-Tyube Area, Dzhalikul' Distr., Vakhsh River Valley, near Yangiabad, 8.05.1974, A.K.

DIAGNOSIS. By the structure of the copulatory organs (Figs 17, 18, 21–23), *T. fabricii* differs from all congeners so far known from Middle Asia. By the general appearance and rather long legs, it seems to be closer to *T. constellatus* (Figs. 11–16), from which it can be separated by the well-developed RTA, the absence of VTA, the short embolus, the longer lateral guide pockets and the clearly different structure of the spermathecae.

DISTRIBUTION. This is a Mediterranean species so far reported from the Canary Islands in the west [Wunderlich, 1991] through Sahara and the Middle and Near East [Bonnet, 1959; Levy, 1977; Assi, 1986] up to Tajikistan in the east [present data]. This is the first record of *T. fabricii* in Central Asia.

DESCRIPTION (specimens from Uzbekistan). **Coloration** almost identical in both sexes but females slightly paler. Carapace light ochre, with a pair of large bean-shaped brown spots on carapace sides (Fig. 20). Abdomen brown dorsally, with a light edging around cardinal spot. Sternum pale yellow. Clypeus, coxae, maxillae, labium, all legs and venter white to light ochre. **Measurements** (10 ♂♂; 7 ♀♀). Body length: 2.50–2.89–3.40; 4.00–4.18–4.30. CL: 1.30–1.37–1.48; 1.37–1.52–1.72. CL/CW: 0.97–1.02–1.09; 0.94–0.99–1.03. AME-AME/AME-ALE: 1.47–1.56–1.69; 1.53–1.64–1.70. PME-PME/PME-PL: 0.89–0.93–0.97; 0.92–0.94–0.97. All eyes of equal size (PME slightly larger). MOA-WP/MOA-WA: 0.87–0.96–1.00; 0.90–0.93–0.95. MOA-WA/MOA-L: 0.72–0.81–0.87; 0.78–0.80–0.84. MOA-WA/clypeus: 1.00–1.03–1.09; 1.02–1.04–1.05. Leg formula: IV, II, III, I. Femur II/CL: 1.75–1.91–2.03; 1.48–1.61–1.67. Femur IV/CL: 0.87–0.98–1.05; 0.71–0.87–0.93. Tibia IV/CL: 1.77–1.96–2.20;



Figs 5–10. Copulatory organs of *Thanatus pictus* L. Koch, 1881: 5 — male palp, median view; 6 — ditto, ventral view; 7 — ditto, retrolateral view; 8 — general appearance of female; 9 — epigyne; 10 — spermatheca. Scale: 0.25 mm.

Рис. 5–10. Копулятивные органы *Thanatus pictus* L. Koch, 1881: 5 — палец самца, медиально; 6 — то же, вентрально; 7 — то же, ретролатерально; 8 — общий вид самки; 9 — эпигина; 10 — сперматека. Масштаб: 0,25 мм.

1.68–1.79–1.84. IMEL: 1.38–1.48–1.69; 1.62–1.67–1.70. Legs IV 4–4.8 times longer than body in males and 2–2.6 times in females. **Chaetotaxy.** DRT consisting of 5–9 trichobothria of subequal length (slightly higher toward distal end of tarsi). Fm I: d3c¹, prd3c¹ (in ♀ sometimes 2c¹); Tb I: pr3c¹, v3c², rt3c¹; Mt I: pr1c¹ (or 0), prap 0. **Male copulatory organs.** Tb significantly shorter than cymbium and approximately equal in length to bulbus. VTA undeveloped. RTA large, with an apical claw (Figs 17–18). Seminal duct of structure typical for the genus, with its large loop being directed toward retrolateral side of tegulum. Embolus short, its base clearly widened (Fig. 18). Conductor poorly-expressed. Palp and cymbium spination as in Figs 17–19. **Female copulatory organs.** Epigyne with a clearly-expressed median plate and lateral guide pockets (Figs 21, 22); median plate longer than wide, recessed in its central part. Shape of spermathecae quite unusual (constricted) as compared to other Middle Asian *Thanatus* species (cf. Figs 23 and 4, 10, 16, etc.).

Thanatus formicinus (Clerck, 1758)
Figs 28–32.

MATERIAL. KAZAKHSTAN: 1 ♀ (ISEA), Pavlodar Area, ca. 25 km N of Pavlodar, near Chernoyarka, meadow, 06.1994, O.L.

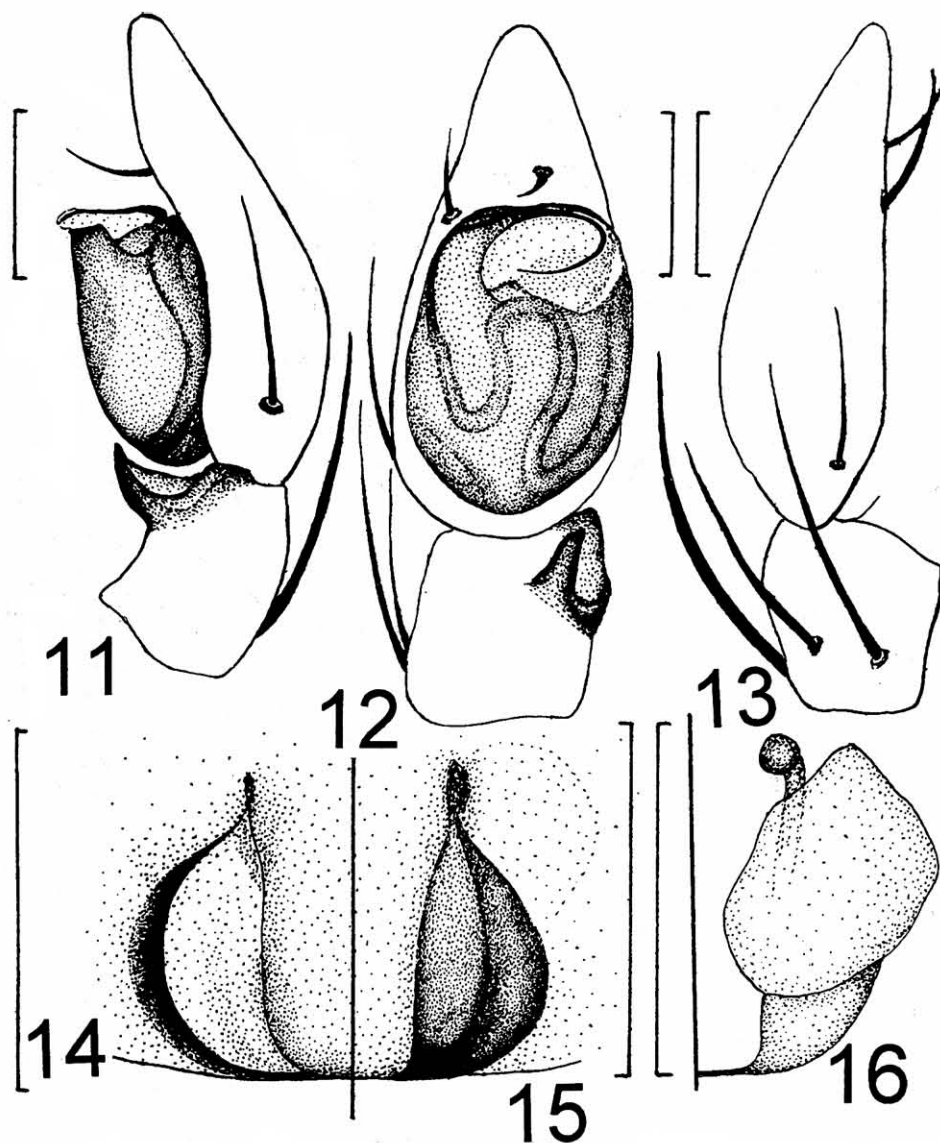
1 ♀ (ISEA), same area, Aksu [=Ermak] Distr., ca. 4 km W of Potaninsky, grass steppe, 13.06.1990, O.L.; 2 ♂♂, 1 ♀ (ISEA), Almaty [=Alma-Ata] Area, Almaty [=Alma-Ata] Nature Reserve, 2000 m a.s.l., 20.05.1992, I. B. Skvorkin. — TAJIKISTAN: 2 ♂♂, 2 ♀♀ (ISEA), Kurgan-Tyube Area, Dzhilikul' Distr., near Aktau Mt. Range, Garavuti, 8–20.05.1973, A.K.

NOTES. This is a common, Holarctic temperate species. In Middle Asia, it has repeatedly been reported from Kazakhstan [Spassky & Lavrov, 1928; Savelyeva, 1970; Pavlenko, 1985; Logunov, 1996], Tajikistan [Andreeva, 1975, 1976] and Turkmenistan [Fet, 1983; Kuznetsov & Fet, 1986; Ovtsharenko & Fet, 1980; Mikhailov & Fet, 1994].

Thanatus imbecillus L. Koch, 1878
Figs 24–27.

MATERIAL. UZBEKISTAN: 3 ♂♂, 1 ♀ (ISEA), Samarkand Area, Urgut Distr., ca. 9 km N of Kitab, Zeravshan Mt. Range, Pass Aman-Kutan, 05.1994, O.L.; 2 ♂♂ (ISEA), Surkhandarya Area, Sariasia Distr., Babatagh Mt. Range, ca. 8 km W of Ak-Mechet', 1200 m a.s.l., *Pistacia* woodland, 04.1994, O.L.

NOTES. This is a rare species related to *T. meronensis* [see Levy, 1977: figs 55–58], which has so far been reported from the Balkan Peninsula, the Caucasus and Middle Asia



Figs 11–16. Copulatory organs of *Thanatus constellatus* Charitonov, 1946: 11 — male palp, retrolateral view; 12 — ditto, ventral view; 13 — ditto, median view; 14, 15 — epigyne, variation; 16 — spermatheca. Scale: 0.25 mm.

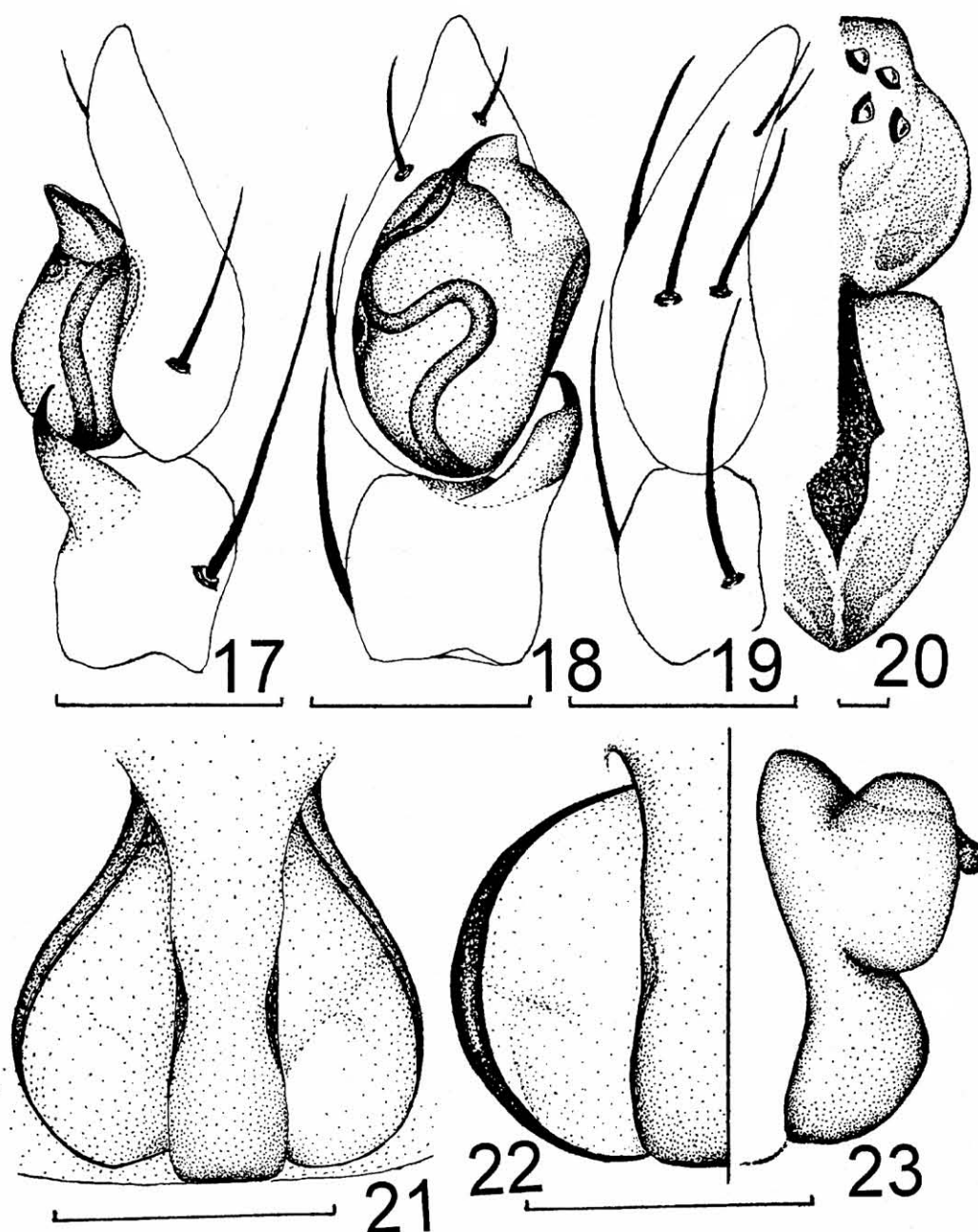
Рис. 11–16. Копулятивные органы *Thanatus constellatus* Charitonov, 1946: 11 — пальпс самца, ретролатерально; 12 — то же, вентрально; 13 — то же, медиально; 14, 15 — эпигина, вариации; 16 — сперматека. Масштаб: 0,25 мм.

only [Simon, 1889, 1899; Koch, 1878; Kulczyński, 1895; Kharitonov, 1969; Andreeva, 1975, 1976; Fet, 1983]. Simon [1889] also assumed that the record of *T. arenarius* by Kroneberg [1875] should actually be referred to *T. imbecillus*. Besides this, as evident from the original figures of Dunin [1984: figs 8a, 6], the records of *T. meronensis* from SE Azerbaijan [Dunin, 1984; Dunin & Mamedov, 1992] actually belong to *T. imbecillus* as well.

Thanatus kitabensis Charitonov, 1946
Figs 33–36.

MATERIAL. KAZAKHSTAN: 2 ♀♀ (ISEA), Pavlodar Area, Aksu [=Ermak] Distr., ca. 40 km W of Pavlodar, Lake Malyi

Kalkaman, steppe, 10.04.1991, O.L.; 3 ♀♀ (ISEA), same locality, 6.06.1994, O.L.; 1 ♀ (ISEA), same area, Bayan-Aul Distr., near Kyzyl-Tau, 11.06.1991, O.L.; 1 ♀ (ISEA), same area and distr., near Toraigy, 25.05.1991, O.L.; 1 ♀ (ZISP), Karaganda Area, Kent Mt., under stones, 25.07.1957, V. P. Tyshchenko; 1 ♂ (ISEA), S-Kazakhstan [=Chimkent] Area, Suzak Distr., ca. 20 km E of Suzak, 26.06.1989, A.Z.; 2 ♀♀ (ISEA), Dzhambul [=Zhambyl] Area, Moiynkum Distr., Khantau Mts, spring near Mt. Sunkar, 11.06.1990, A.Z.; 2 ♀♀ (ISEA), same area, Krasnogorka Distr., Chu-Ili Mts, 15.06.1990, A.Z.; 9 ♂♂, 9 ♀♀ (ISEA), Almaty [Alma-Ata] Area, Ili Distr., near Zarechnyi, 13.04.1989, A. Raikhanov & S. Ibraev; 5 ♂♂, 2 ♀♀ (ISEA), same area, Talgar Distr., bank of Kapchagai Reservoir, steppe, 8.04.1990, O.L.; 1 ♀ (ISEA), Almaty, 30.05.1990, O.L.; 4 ♂♂, 10 ♀♀ (ISEA), same area, Chilik Distr., ca. 29 km ESE of Chilik, Syuety Mts, 9.05.1990, Ch. K. Tarabaev; 3 ♀♀ (ISEA), same area, Kegen Distr., ca. 1.5 km W of Charyn River Canyon,

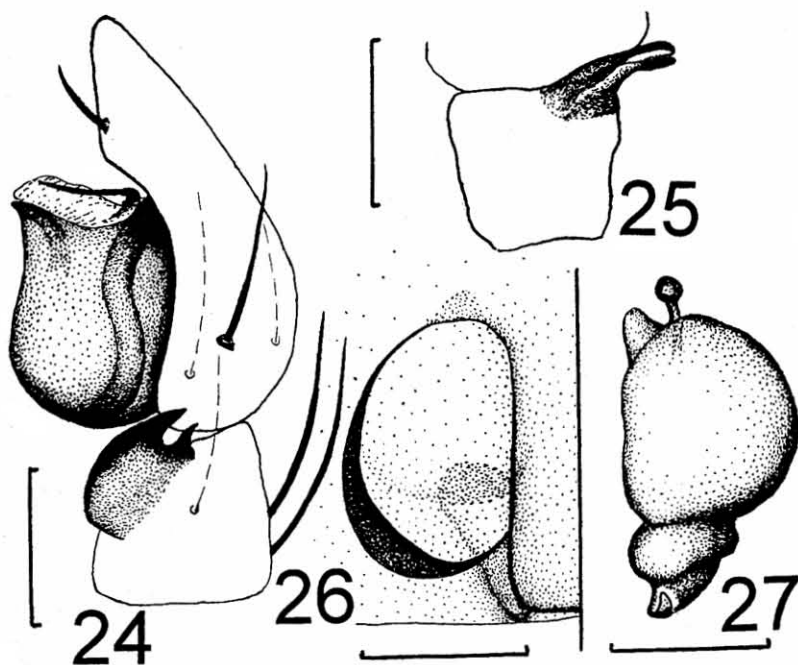


Figs 17–23. Copulatory organs of *Thanatus fabricii* (Audouin, 1827): 17 — male palp, retrolateral view; 18 — ditto, ventral view; 19 — ditto, median view; 20 — general appearance of female; 21, 22 — epigyne, variation; 23 — spermatheca. Scale: 0.25 mm.

Рис. 17–23. Копулятивные органы *Thanatus fabricii* (Audouin, 1827): 17 — палец самца, ретролатерально; 18 — то же, вентрально; 19 — то же, медиально; 20 — общий вид самки; 21, 22 — эпигина, вариации; 23 — сперматека. Масштаб: 0,25 мм.

Toraigyr Mt. Range, 21.04.1990, A.Z.; 4 ♀♀ (ISEA), Tal'dykorgan [=Taldy-Kurgan] Area, Panfilov [=Zharkent] Distr., ca. 29 km S of Konyrolen, Aktau Mt. Range, 8.05.1992, A.Z. — UZBEKISTAN: 3 ♀♀ (ISEA), Bukhara Area, Gazli Distr., Kyzyl-Kum Desert, Kul'dzhuktau Mt. Range, ca. 6.5 km E of Dzhangal'dy, 05.1994, O.L.; 1 ♀ (ISEA), Dzhizak [=Zhizzakh] Area, Farish [=Forish] Distr., N foot of Nuratau Mt. Range, near Farish [=Forish], 11.04.1976, A.K.; 1 ♂, 7 ♀♀ (ISEA), Surkhandarya Area, Sariasia Distr., Babatagh Mt. Range, 6–10 km W of Ak-Mechet', *Pistacia* woodland, 05.1994, O.L. — TURKMENISTAN: 1 ♂ (ISEA), Tashauz [=Dashkhovuz] Area, Tel'mansk Distr., S bank of Lake

Sarykamys, 19.04.1984, O.S. Soyunov; 1 ♀ (ISEA), Chardzhou Area, Chardzhou Distr., Repetek Research Station, *Haloxylon* desert woodland (semi-drift sands), 2.04.1989, O.L.; 3 ♂♂, 5 ♀♀ (ISEA), same locality, 27.03.1990, O.L.; 1 ♀ (ISEA), Chardzhou Area, Charshanga Distr., near Kelif, 21.04.1976, A.K. — TAJIKISTAN: 1 ♀ (ISEA), "N slope of Turkestansky Mt. Range, Kusavli-Sam", 07.1975, A.K.; 3 ♂♂, 11 ♀♀ (ISEA), Kurgan-Tyube Area, Dzhilikul' Distr., Aktau Mt. Range, near Garavuti, under stones, 16.04.1973, A.K.; 2 ♂♂, 2 ♀♀ (ISEA), Kurgan-Tyube Area, Dzhilikul' Distr., "Tigrovaya Balka" Nature Reserve, 14.05.1974, A.K.; 1 ♀ (ISEA), Kurgan-Tyube Area, near Aivadz, 25.04.1974,



Figs 24–27. Copulatory organs of *Thanatus imbecillus* L. Koch, 1878: 24 — male palp, retrolateral view; 25 — tibial apophysis, dorsal view; 26 — epigyne; 27 — spermatheca. Scale: 0.25 mm.

Рис. 24–27. Копулятивные органы *Thanatus imbecillus* L. Koch, 1878: 24 — палец самца, ретролатерально; 25 — вырост голени, дорзально; 26 — эпигина; 27 — сперматека. Масштаб: 0,25 мм.

A.K.; 1 ♀ (ISEA), Kurgan-Tyube Area, Pyandzh Distr., ca. 6 km S of Zebon, stony-loess foothills, 10.09.1989, A.V. Abramov.

DIAGNOSIS. *T. kitabensis* is most closely related to *T. formicinus*, but can be distinguished by the curved RTA (cf. Figs 33, 34 and 28, 29) and the presence of a medial epigynal pocket (cf. Figs 35 and 30).

DISTRIBUTION. *T. kitabensis* seems to display a typical Turanian lowland pattern, also apparently the most common congener in the area at hand. Since the original description [Kharitonov, 1946], this species has been recorded in Tajikistan [Andreeva, 1975, 1976], S-Kazakhstan [Zyuzin & Tarabaev, 1994; Zyuzin et al., 1994] and Kalmykia [Minoransky & Ponomarev, 1984].

DESCRIPTION. Coloration almost identical in both sexes. Carapace brown, with an ochre median band and marble colour markings on sides. Abdomen ochre-yellow; dorsum with a brown cardinal spot. Sternum, coxae and all legs yellow, with neither patches nor rings. Measurements (25 ♂♂; 50 ♀♀). Body length: 4.90–5.70–6.80; 5.50–8.10–10.20. CL: 1.95–2.12–2.30; 2.20–2.53–2.95. CL/CW: 1.00–1.01–1.02; 1.00–1.05–1.09. AME-AME/AME-ALE: 1.69–1.94–2.00; 1.47–1.85–2.00. Eyes of first row equally separated from each other. PME-PME/PME-PLE: 1.00–1.17–1.25; 1.00–1.09–1.17. All eyes of sub-equal size, yet lateral eyes slightly larger than medial ones. MOA-WA slightly narrower than MOA-WP; MOA-L equal to clypeal height. Leg formula: II, IV, I, III. Femur II/CL: ~1.00; 1.05–1.11–1.27. Femur IV/CL: ~1.00; 1.00–1.03–1.05. Tibia IV/CL: 0.81–0.94–1.00; 0.86–1.02–1.10. IMEL: 1.09–1.12–1.16; 1.07–1.10–1.12. Chaetotaxy. DRT consisting of 6–10 trichobothria gradually enlarged toward distal end of tarsi. Fm I: d3c¹, prd3c¹; Tb I: pr3c¹, v3c², rt3c¹; Mt I: spineless. Male copulatory organs. Tb ½ times shorter than cymbium and bearing the only RTA directed laterad (Fig. 34). Palp and cymbium spination as in Fig. 33. Female copulatory organs. Epigyne and spermathecae typical to *Thanatus* species, as in Figs 35 & 36.

Thanatus pictus L. Koch, 1881 Figs 5–10.

MATERIAL. KAZAKHSTAN, Pavlodar Area: 7 ♀♀ (ISEA), Aksu [=Ermak] Distr., ca. 40 km W of Pavlodar, near Lake Mal'yi Kalkaman, steppe, 10.04.1990, O.L.; 2 ♀♀ (ISEA), Pavlodar Distr., near Pavlodar, 7.10.1989, O.L.; 11 ♀♀ (ISEA), Pavlodar Distr., ca. 4 km SE of Pavlodar, 7.10.1989, O.L.; 1 ♂, 1 ♀ (ISEA), Bayan-Aul Distr., Babaly Mts, stony slope, 700 m a.s.l., 27.08.1990, O.L.; 1 ♀ (ISEA), same distr., near Lake Toraigyr, 25.05.1991, O.L.

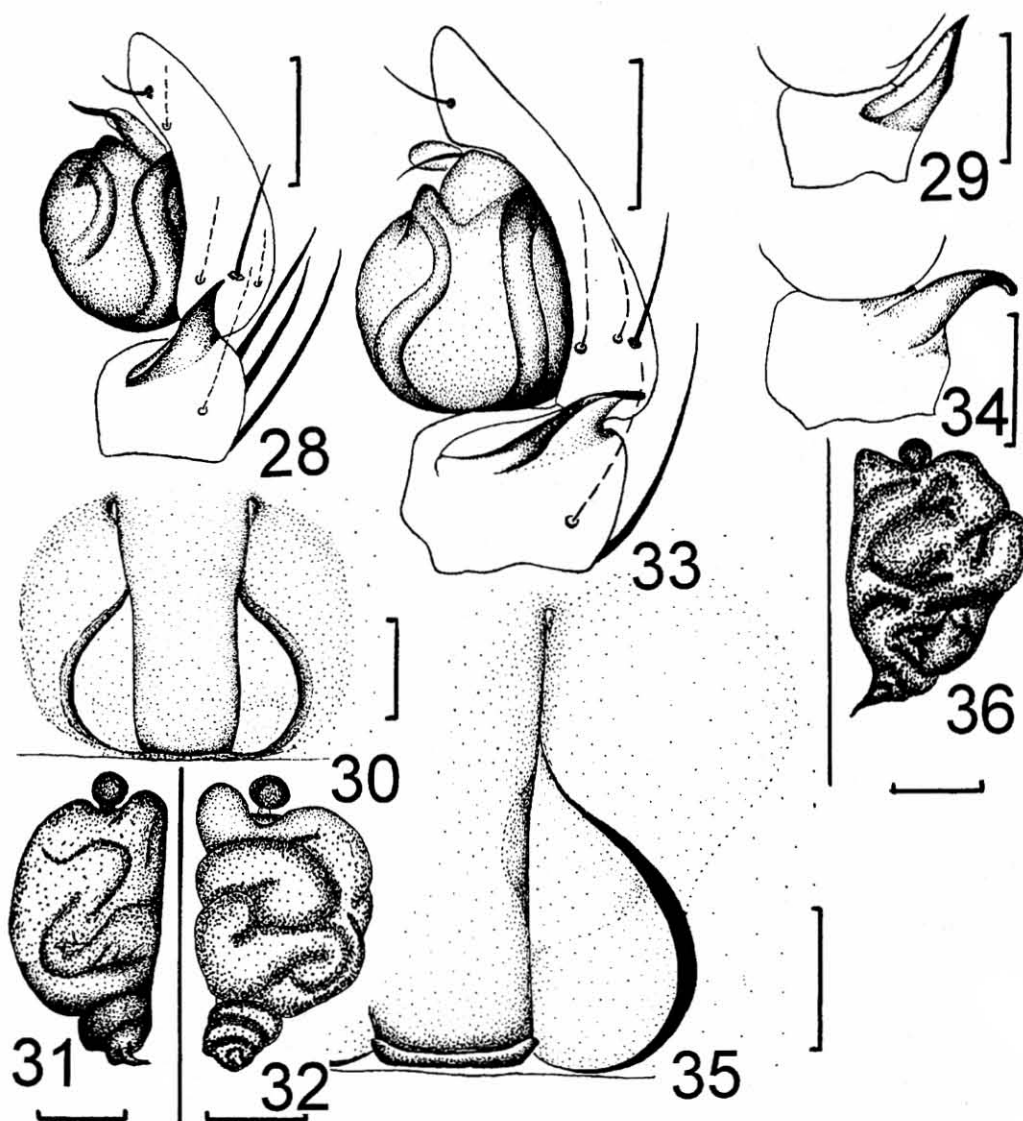
NOTES. This is a poorly-known species which seems to be distributed over the steppe zone from Middle Europe [Wunderlich, 1969] in the west to the Altai in the east [Logunov, 1996: sub *Apollonhantes babaly*]. The identity of the latter name with *T. pictus* has been proven by J. Wunderlich [pers. comm.] and the synonymy will be formalized by E. Szita [pers. comm.].

The *sabulosus* group

Thanatus arenarius Thorell, 1872 Figs 1–4.

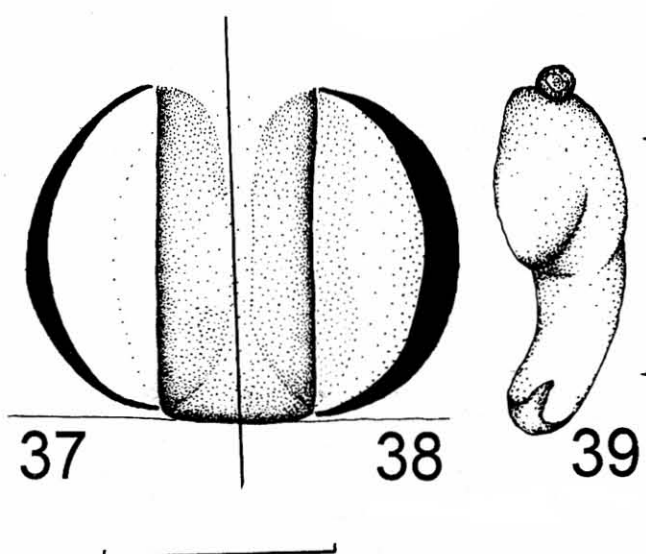
MATERIAL. KAZAKHSTAN: 3 ♀♀ (ISEA), N-Kazakhstan Area, Sokolovka Distr., Ishim River valley, near Bol'shaya Mal'yshka, 18.06.1986, D. V. Logunov; 1 ♂, 1 ♀ (ISEA), Pavlodar Area, ca. 25 km N of Pavlodar, near Chernoyarka, steppe, 06.1994, O.L.; 1 ♀ (ISEA), same area, Bayan-Aul Distr., near Kyzyl-Tau, creek valley, 11.06.1991, O.L.

NOTES. This is a widespread Euro-Siberian steppe species [Logunov, 1996]. In Kazakhstan, it has been found in the steppe of Akmola Area [Spassky, 1930]. Kroneberg [1875] reported this species from Obburden. Besides, Simon [1889] was of the opinion that the Central Asian specimens he identified as *T. arenarius* most likely should be assigned to *T. imbecillus* L. Koch, 1878.



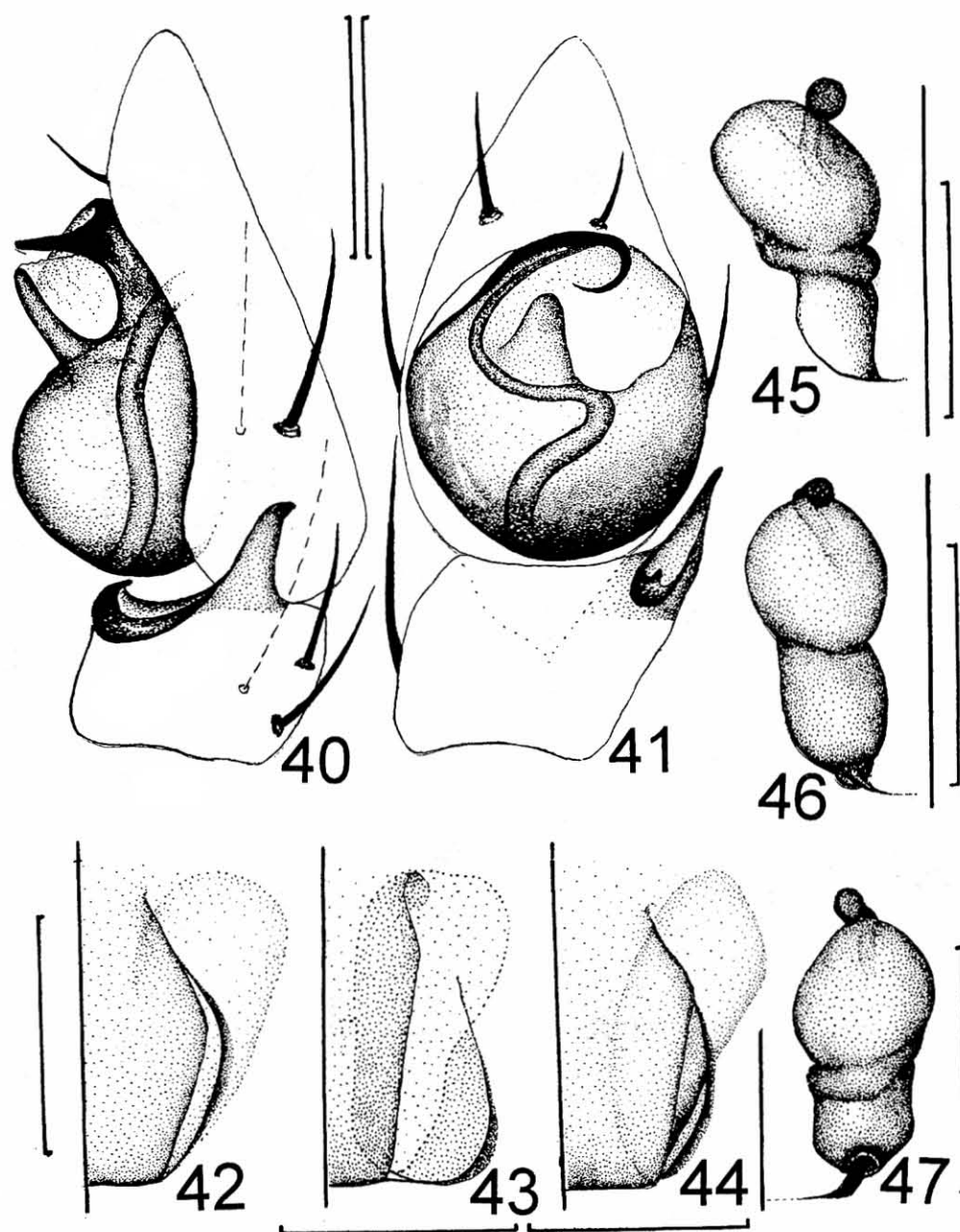
Figs 28-36. Copulatory organs of *Thanatus formicinus* (Clerck, 1758) (28-32) and *Thanatus kitabensis* Charitonov, 1946 (33-36): 28, 33 — male palp, retrolateral view; 29, 34 — tibial apophysis, dorsal view; 30, 35 — epigyne; 31, 32, 36 — spermathecae. Scale: 0.25 mm.

Рис. 28-36. Копулятивные органы *Thanatus formicinus* (Clerck, 1758) (28-32) и *Thanatus kitabensis* Charitonov, 1946 (33-36): 28, 33 — палец самца, ретролатерально; 29, 34 — вырост голени, дорсально; 30, 35 — эпигина; 31, 32, 36 — сперматеки. Масштаб: 0,25 мм.



Figs 37-39. Female copulatory organs of *Thanatus atratus* Simon, 1875: 37, 38 — epigyne, variation; 39 — spermatheca. Scale: 0.25 mm.

Рис. 37-39. Копулятивные органы самки *Thanatus atratus* Simon, 1875: 37, 38 — эпигина, вариации; 39 — сперматека. Масштаб: 0,25 мм.



Figs 40–47. Copulatory organs of *Thanatus mikhailevi* Logunov, 1996: 40 — male palp, retrolateral view; 40 — ditto, ventral view; 42–44 — epigyne, variations; 45–47 — spermathecae, variation. Scale: 0.25 mm.

Рис. 40–47. Копулятивные органы *Thanatus mikhailevi* Logunov, 1996: 40 — палец самца, ретролатерально; 41 — то же, вентрально; 42–44 — эпигина, вариации; 45–47 — сперматеки, вариации. Масштаб: 0,25 мм.

The *striatus* group

Thanatus atratus Simon, 1875 Figs 37–39.

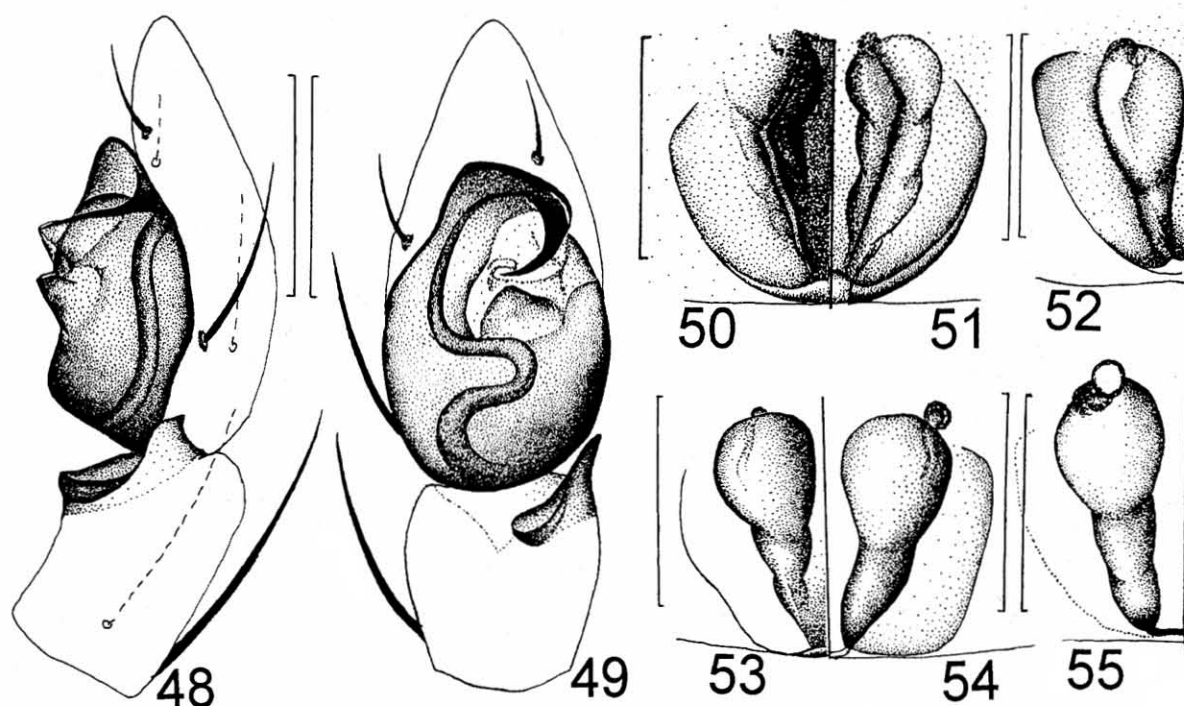
MATERIAL. KAZAKHSTAN: 4♀♀ (ISEA), Dzhambul [=Zhambyl] Area, Moiynkum Distr., Betpak-Dala Desert, ca. 40 km NE of Ulan-Bel', Shingel'dy Spring, 4.06.1990, A.Z.; 2♀♀ (ISEA), Taldy-Kurgan Area, Kopal Distr., 14.07.1984, coll.?

NOTES. *T. atratus* is known from C- and N-Europe in the west to the Altai and E-Kazakhstan in the east [see Logunov,

1996]. The present records in S-Kazakhstan provide the southernmost localities for the species.

Thanatus mikhailevi Logunov, 1996 Figs 40–47.

MATERIAL. KAZAKHSTAN: 1 ♂, 2♀♀ (ISEA), same area, Aksu [=Ermak] Distr., near Lake Malyi Kalkaman, 6.06.1994, O.L.; 1 ♀ (ISEA), Pavlodar Area, Pavlodar Distr., near Pavlodar, 29.06.1989, O.L.; 1 ♂, 1 ♀ (ISEA), Pavlodar Area, ca. 25 km E of Pavlodar, near Krasnoarmeika, steppe, 27.05.1992, O.L. —



Figs 48–55. Copulatory organs of *Thanatus vulgaris* Simon, 1870: 48 — male palp, retrolateral view; 49 — ditto, ventral view; 50–54 — epigyne, variations; 55 — spermatheca. Scale: 0.25 mm.

Рис. 48–55. Копулятивные органы *Thanatus vulgaris* Симон, 1870: 48 — палец самца, ретролатерально; 49 — то же, вентрально; 50–54 — эпигина, вариации; 55 — сперматека. Масштаб: 0,25 мм.

KYRGHYZSTAN: 23 ♂♂ (ISEA), Issyk-Kul' Area, Issyk-Kul' Distr., Kungei-Ala-Too Mt. Range, near Toru-Aigyr, 2.08.1970, A.K.

NOTES. This recently described species [see Logunov, 1996] has so far been known from the steppe zone of West Siberia only, the present record in Kyrgyzstan being its southeasternmost locality. It is very likely that most of the records of *T. striatus* in Middle Asia [Andreeva, 1975, 1976; Pavlenko, 1985; Zyuzin et al., 1994; etc.] actually belong to *T. mikhailovi*. This problem requires a special study in the future.

Thanatus vulgaris Simon, 1870

Figs 48–55.

MATERIAL. KAZAKHSTAN: 1 ♀ (ISEA), S-Kazakhstan [=Chimkent] Area, Suzak Distr., ca. 20 km E of Suzak, 26.06.1989, A.Z.; 1 ♀ (ISEA), same area, Bugunsky Distr., near Arys', 25.05.1994, O.L.; 3 ♀♀ (ISEA), S-Kazakhstan [=Chimkent] Area, Chardara Distr., Kyzyl-Kum Desert, ca. 68 km of Nurata along Syrdarya River, 12.05.1976, A.K. — UZBEKISTAN: 1 ♂ (ISEA), Bukhara Area, Gazli Distr., Kul'dzhuktau Mt. Range, ca. 7 km E of Dzhangeld'y, 21–22.05.1994, O.L.; 3 ♂♂, 3 ♀♀ (ISEA), Bukhara Area, Bukhara Distr., 20 km SE of Kagan, near "Dzheiraniy Pitomnik", 18–19.05.1994, O.L.; 1 ♂ (ISEA), Syrdarya Area, along the highway Samarkand-Tashkent, 12.05.1990, A.Z.; 2 ♂♂, 2 ♀♀ (ISEA), Samarkand Area?, Zeravshan River valley, date ?, A.B. Nenilin; 2 ♀♀ (ISEA), Samarkand Area, Urgut Distr., ca. 9 km N of Kitab, Zeravshan Mt. Range, Pass Aman-Kutan, 05.1994, O.L.; 5 ♀♀ (ISEA), Surkhandarya Area, Baisun Distr., near Derbent, 05.1994, O.L.; 5 ♂♂, 5 ♀♀ (ISEA), Surkhandarya Area, Babatagh Mt. Range, 5–6 km W of Ak-Mechet', 04.1994, O.L. — TAJIKISTAN: 22 ♂♂, 28 ♀♀ (ISEA), Kurgan-Tyube Area, Dzhalikul' Distr., near Garavuti, bank of

Vakhsh River, 14.02–22.05.1973, A.K.; 1 ♂ (ISEA), same locality, 22.05.1978, Chernenko; 3 ♂♂, 9 ♀♀ (ISEA), Kurgan-Tyube Area, Dzhalikul' Distr., "Tigrovaya Balka" Nature Reserve, 14.05–20.06.1973, A.K.; 3 ♂♂, 3 ♀♀ (ISEA), Kulyab Area, near Dangara, "Gairat Kolkhoz", 9.08.1971, S. Pardaev.

NOTES. This is a Holarctic polyzonal species which has repeatedly been recorded in Middle Asia [Spassky, 1952; Fet, 1983; Kuznetsov & Fet, 1986; Pavlenko, 1985; Mikhailov & Fet, 1994; Zyuzin et al., 1994; etc.].

Acknowledgements. I wish to express my warmest thanks to Dr. A.A. Zyuzin (Almaty, Kazakhstan), who contributed with specimens to this study. Besides, I am strongly obliged to Dr. S.L. Esyunin, of the PSUN, and Dr. D.V. Logunov, of the ISEA, for arranging material on loan from their museum collections. Dr. D.V. Logunov has also provided a critical review of an earlier draft of this work and translated the manuscript into English. Finally, my thanks go to Dr. S.I. Golovatch (Moscow) for his kind linguistic help. I am very obliged to Mr. A.V. Gromov (Almaty, Kazakhstan) for the help in identifying some localities in Middle Asia.

References

- Andreeva E. M., 1975. Distribution and ecology of spiders (Aranei) in Tajikistan // *Fragm. faun.* Vol.20. No.19. P.325–352.
- Andreeva E. M. 1976. [Spiders of Tajikistan]. Dushanbe: Donish. 195 pp. [in Russian].

- Assi F. 1986. Note sur faunistique sur les Thomisidae et les Philodromidae du Liban (Araneae) // Rev. Arachnol. T.7. Fasc.1. P.41–46.
- Bonnet P. 1959. Bibliographia Araneorum. Toulouse: Douladoure. Vol.2. Pt.5. P.4231–5058.
- Dunin P. M. 1984. [Fauna and ecology of spiders (Aranei) of the Apsheron Peninsula (Azerbaijanskaya SSR)] // Utotchkin A.S. et al. (eds.). Fauna i ekologiya paukobraznykh. Perm. P.45–60 [in Russian].
- Dunin P. M. & Mamedov A. A. 1992. [Spiders in cotton fields of the southeastern part of Azerbaijan] // Byulleten' MOIP. Otd. Biol. Vol.97. No.6. P.53–61 [in Russian, with English summary].
- Fet V. Ya. 1983. [The fauna of Aranei of the South-Western Kopetdagh] // Entomol. obozrenie. Vol.62. No.4. P.835–845 [in Russian, with English summary].
- Kharitonov D. E. 1932. Katalog der russischen Spinnen. Leningrad: AN SSSR Publ. 206 pp.
- Kharitonov D. E. 1936. [Supplement to the catalogue of Russian spiders] // Uch. zap. Permsk. gos. univ. T.2. No.1. P.167–223 [in Russian, with German summary].
- Kharitonov D. E. 1946. [New forms of spiders in the fauna of the USSR] // Izv. Estestv.-Nauchn. Inst. Molotovsk. (=Permsk.) gos. Univ. T.12. No.3. P.19–35 [in Russian, with English summary].
- Kharitonov D. E. 1969. [Material to the spider fauna of the USSR] // Uch. zap. Permsk. gos. univ. Biologiya. No.179. P.59–132 [in Russian].
- Koch L. 1878. Kaukasische Arachnoideen // Schneider O. (ed.): Naturwissenschaftliche Beiträge zur Kenntnis der Kaukasusländer. Dresden: Sitzber. Isis (Beiträge). S.36–71.
- Kroneberg A. I. 1875. [A.P. Fedtschenko, Voyage in Turkestan. Spiders, Araneae] // Izv. Obshch. Lyubit. Estestvozn. Antropol. i Etnogr. Vol.19. No.3. P.I–IV, 1–55 [in Russian].
- Kulczyński W. 1895. Araneae a Dre G. Hovarth in Bessarabia, Chersoneso Taurico, Transcaucasia et Armenia Russica collectae // Term. Füzet. T.18. P.3–38.
- Kuznetsov G.T. & Fet V. Ya. 1986. [Material to the spider fauna of the Kopetdagh] // Sherbak N.N. (ed.): Priroda Tsentral'nogo Kopetdagha. P.48–67 [in Russian].
- Levy G. 1977. The philodromid spiders of Israel (Araneae: Philodromidae) // Israel J. Zool. Vol.26. P.193–229.
- Logunov D. V. 1996. A critical review of the genera *Apollophanes* O.P.-Cambridge, 1898 and *Thanatus* C.L. Koch, 1837 in North Asia (Araneae, Philodromidae) // Revue arachnologique. T.11. Fasc.13. P.133–202.
- Mikhailov K.G. 1997. Catalogue of the spiders of the territories of the former Soviet Union (Arachnida, Aranei) // Sbornik trudov Zool. muzeya MGU. Vol.37. 416 pp.
- Mikhailov K. G. & Fet V. Ya. 1994. Fauna and zoogeography of spiders (Aranei) of Turkmenistan // Fet, V. & Atamuradov, K. I. (eds.): Biogeography and Ecology of Turkmenistan. Kluwer Acad. Publ. P.499–524.
- Minoransky V. A. & Ponomarev A. V. 1984. [Material to the spider fauna of Kalmykia] // Utotchkin A. S. et al. (eds.): Fauna i ekologiya paukobraznykh. Perm. P.82–92 [in Russian].
- Ono H. 1988. A revisional study of the spider family Thomisidae (Arachnida, Araneae) of Japan. Tokyo: National Science Museum. 252 pp.
- Ovtsharenko V. I. & Fet V. Ya. 1980. [Fauna and ecology of the spiders (Aranei) of Badkhyz (Turkemenskaya SSR)] // Entomol. obozrenie. Vol.59. No.2. P.442–447 [in Russian, with English summary].
- Pavlenko T. V. 1985. [Spatial distribution of spiders in the natural complexes of Barsakel'mes Island (Aralskoye More)] // Ovtsharenko, V.I. (ed.): Fauna i ekologiya paukov SSSR. Trudy Zool. inst. AN SSSR. Vol.139. P.147–155 [in Russian, with English summary].
- Savelyeva L. G. 1970. [Fauna and zoogeographical connections of spiders of the East-Kazakhstan Area] // Biologiya i gheografiya. Alma-Ata. No.6. P.78–88 [in Russian].
- Schick R. X. 1965. The crab spiders of California (Araneae, Thomisidae) // Bull. Amer. Mus. Nat. Hist. Vol.129. No.1. P.1–180.
- Simon E. 1889. Arachnidae transcaspicae ab Radde, Walter en Conchin inventae (annis 1886–1887) // Verh. zool.-bot. Ges. Wien. Bd.39. S.373–386.
- Simon E. 1899. Araneae Transcapicae // G. I. Radde. [Collections of the Caucasian Museum] Museum Caucasicum. Tiflis. T.1. Zoology. P.477–478.
- Spassky S. A. 1930. [A list of spiders of the Tenizo-Kurgaldzhin zoological expedition] // Izv. Zapadno-Sibirsk. gheograf. Obsch. Omsk. T.7. P.27–28 [in Russian].
- Spassky S. A. 1952. [Spiders of the Turan Zoogeographical Province] // Entomol. obozr. T.32. P.192–205 [in Russian].
- Spassky S. A. & Lavrov S. 1928. [Material to the spider fauna of West Siberia and Kazakhstan] // Trudy Sibirsk. Inst. sel'skogo khozyaistva i lesovodstva. Omsk. T.10. No.2. P.1–13 [in Russian, with French summary].
- Wunderlich J. 1969. Zur Spinnenfauna Deutschland, IX. Beschreibung seltener oder bisher unbekannter Arten (Arachnida: Araneae) // Senckenbergiana biol. Bd.50. Hft.5/6. S.381–393.
- Wunderlich J. 1991. Die Spinnen-Fauna der Makaronesischen Inseln // Beitr. Araneol. Bd.1. S.1–619.
- Zyuzin A. A. & Tarabaev C. K. 1994. The spiders and scorpions inhabiting Ustyurt Plateau and Mangyshlak Peninsula (South-Western Kazakhstan) // Boll. Accad. Gioenia Sci. Nat. Vol.26 (for 1993). No.345. P.395–404.
- Zyuzin A. A., Tarabayev C. K. & Fedorov A. A. 1994. The spider fauna (Arachnida: Araneae) of the eastern part of Kyzylkum Desert and the eastern surroundings of Aral Sea // Selevinia. No.1. P.3–11 [in Russian, with English summary].