

A contribution to the knowledge of the harvestman fauna of Siberia (Arachnida: Opiliones)

Вклад в познание сенокосцев фауны Сибири (Arachnida: Opiliones)

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KEY WORDS: Opiliones, faunistics, redescrptions, distribution, Siberia.

КЛЮЧЕВЫЕ СЛОВА: Opiliones, фаунистика, переописания, распространение, Сибирь.

ABSTRACT: The paper presents the results of a faunistic study of eight opilionid species occurring in Siberia. Three species, *Homolophus nordenskiöldi* (C.L. Koch, 1879), *H. przewalskii* (Starega, 1978), and *Hamitergum eobius* (Redikorzev, 1936), are redescribed based on newly collected material. All eight species are figured and their distributions mapped.

РЕЗЮМЕ: Работа представляет результаты фаунистического исследования восьми видов опилионид, обитающих в Сибири. Три вида, *Homolophus nordenskiöldi* (C.L. Koch, 1879), *H. przewalskii* (Starega, 1978) и *Hamitergum eobius* (Redikorzev, 1936), переописаны по вновь собранным экземплярам. Все виды иллюстрированы, для всех даны карты распространения.

Introduction

Compared with Western and Central Europe, the European part of Russia and Japan, our knowledge of the Siberian Opiliones is quite poor and incomplete. Since Starega's [1978] catalogue of the harvestman fauna of the former USSR, only very few works dealing with Siberian Opiliones have been published [e.g. Gritsenko, 1979a, b, 1980; Martens, 1989]. For this reason, in Siberia even the distribution of common opilionids is poorly documented and needs to be refined. The current study adds to the knowledge of eight species of Opiliones occurring in Siberia, of which three are redescribed.

Material and methods

This study is based on over 2,058 adult harvestspiders recently collected from numerous localities

in South Siberia. Only relevant literature sources as regards the study territory have been referred to. For more information on taxonomic issues concerning each species involved see Starega [1978], Martens [1978] and Suzuki & Tsurusaki [1983].

Abbreviations for the institutions and individuals where material was borrowed from are as follows: ISEA — Zoological Museum, Institute for Systematics and Ecology of Animals, Novosibirsk, Russia (D.V. Logunov); TUJ — Department of Biology, Tottori University, Tottori, Japan (N. Tsurusaki); TSU — Department of Zoology, Tomsk State University, Tomsk, Russia (S.Yu. Rakov); ZMMU — Zoological Museum of the Moscow State University, Russia (K.G. Mikhailov).

Abbreviations used in the text: Fm — femur; Mt — metatarsus; Pt — patella; Tb — tibia; Tr — trochanter; s.l. — same locality. Names of some collectors are abbreviated as follows: A.T. — Mr. A.N. Tchemeris; B.Z. — Dr. B.P. Zakharov; D.L. — Dr. D.V. Logunov; E.B. — Dr. E.P. Bessolitsyna; S.L. — Mr. S.V. Lukiantsev; S.R. — Mrs. S. Rudovskaya; R.D. — Mr. R.Yu. Dudko; Y.M. — Dr. Yu.M. Marusik; V.D. — Dr. V.V. Dubatolov; V.R. — Dr. V.N. Romanenko; V.Z. — Mr. V.K. Zinchenko.

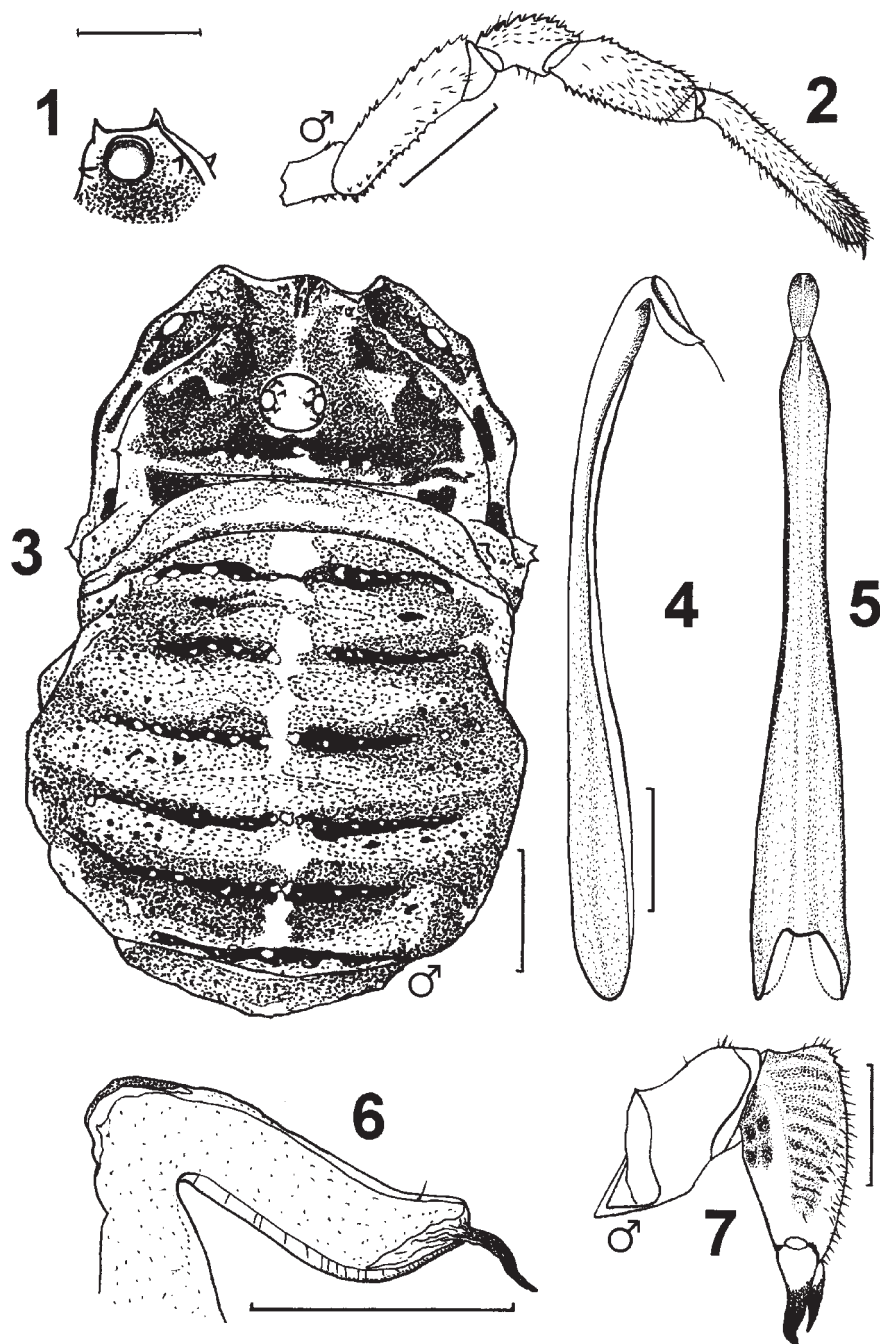
All measurements are in mm.

Survey of species

Family PHALANGIIDAE Simon, 1879

Homolophus nordenskiöldi (C.L. Koch, 1879)
Figs 1–7; Map 1.

MATERIAL. TOMSK AREA: 1 ♂ (ISEA), Tegul'det Distr., near Voronino, 19.08.1993, S.L. — NOVOSIBIRSK AREA: 1 ♂,



Figs. 1–7. *Homolophus nordenskiöldi* (C.L. Koch, 1879): 1 — male ocularium, lateral view; 2 — male palp, lateral view; 3 — male body, dorsal view; 4 — penis, lateral view; 5 — ditto, dorsal view; 6 — glans, lateral view; 7 — male chelicera, lateral view. Scale: 0.5 mm (1, 4–6) and 1 mm (2, 3, 7).

Рис. 1–7. *Homolophus nordenskiöldi* (C.L. Koch, 1879): 1 — глазной бугор самца, латерально; 2 — пальпа самца, латерально; 3 — тело самца, дорзально; 4 — пенис, латерально; 5 — тоже, дорзально; 6 — головка пениса, латерально; 7 — хелицера самца, латерально. Масштаб: 0,5 мм (1, 4–6) и 1 мм (2, 3, 7).

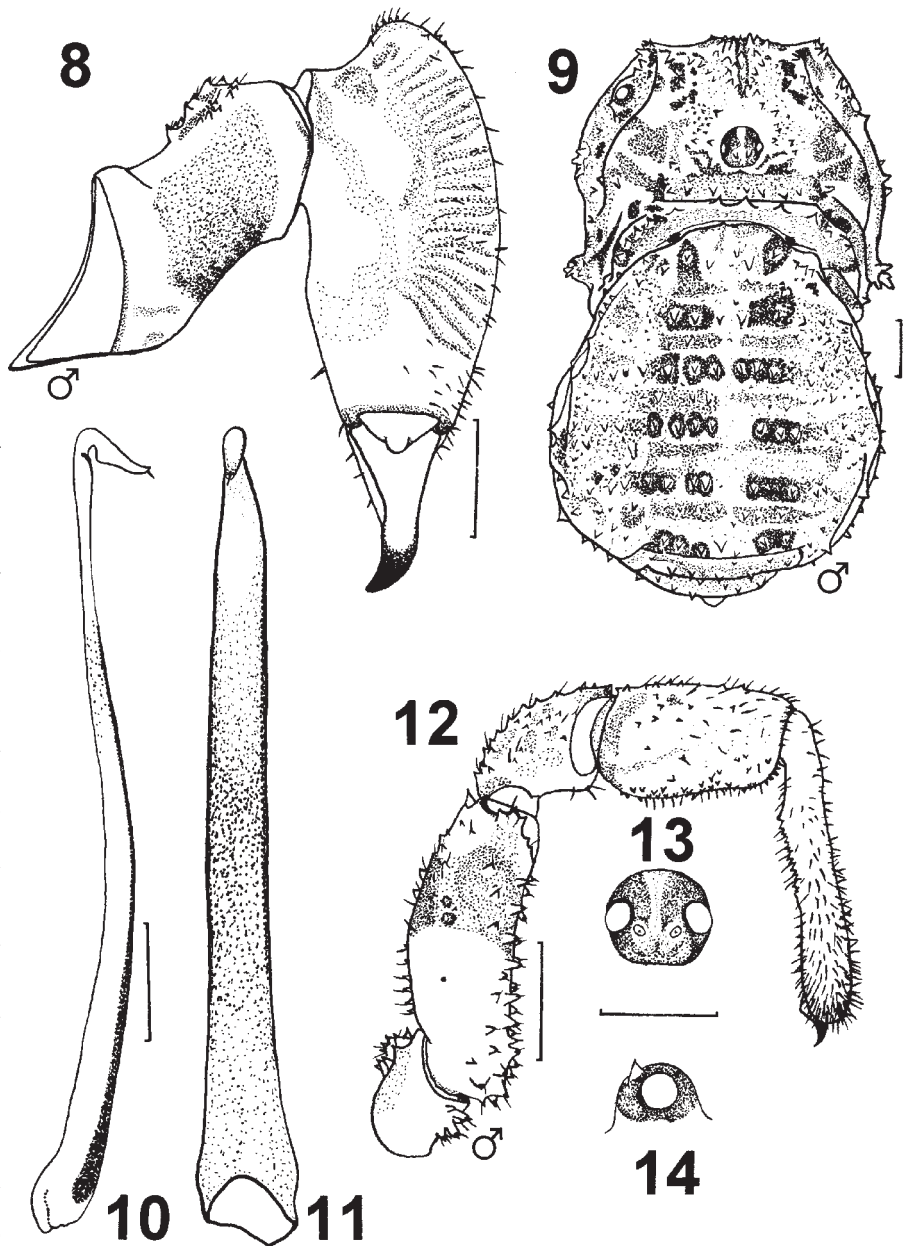
2 ♀♀ (ISEA), Kolyvan' Distr., Boyarka, 8.08.1987, D.L. — TUVA: 4 ♂♂, 8 ♀♀ (ISEA), Erzin Distr. Tere-Khol' Lake, 1,150–1,200 m a.s.l., 9.08.1989, D.L.; 10 ♂♂, 18 ♀♀ (ISEA), same, 15–20 km WNW of Erzin, Dus-Khol Lake, 800–900 m a.s.l., 13.08.1989, D.L. — KHAKASSIA: 2 ♂♂, 2 ♀♀ (ISEA), ca. 7 km W of Kyzyl, Yenisei River Valley, 700–900 m a.s.l., 23.07.1989, D.L. — KRASNOYARSK PROVINCE: 1 ♂ (ZMMU), middle flow of Yenisey River, 25.10.1988, A.B. Ryvkin. — BURIYATIA: 2 ♂♂, 2 ♀♀ (ISEA), 2 ♂♂, 2 ♀♀ (TUJ), Selenga Distr., Termnik River, Tayozhnyi, 5–18.08.1984, B.Z.; 2 ♂♂, 2 ♀♀ (ZMMU), Zaigraev District, near Kurba, 19.08.1987, A.P. Rasnitsyn. — CHITA AREA: 5 ♂♂, 6 ♀♀ (ISEA), near Kyra, 800–900 m a.s.l., 12.08.1991, V.D.; 1 ♂, 1 ♀ (ISEA), 60–65 km SW of Kyra, Sokhondo Reserve, 1,300–1,400 m a.s.l., 12.08.1991, V.P. Pekin; 4 ♂♂, 4 ♀♀ (ISEA), Dahuria, Dahurian Reserve, near Nizhniy-Tsasuchei, 16.07–

1.08.1996, V.D. — E-KAZAKHSTAN AREA: 1 ♂ (ZMMU), SW-Altai, E of Narymskiy Mt. Range, Karatastau Mt., 1,300–1,600 m a.s.l., 16.07.1997, R.D. & V.Z.; 2 ♂♂, 1 ♀ (ISEA), s.l., upper reaches of Ozernaya River, 2,300–2,700 m a.s.l., 19.07.1997, R.D. & V.Z.; 2 ♂♂, 2 ♀♀ (ZMMU), s.l., 19.07.1997, R.D. & V.Z.; 3 ♂♂, 1 ♀ (ZMMU), W-Altai, Ivanovskiy Mt. Range, ca. 17 km S of Leninogorsk, Serzhinskiy Belok Mt., 1,800–2,000 m a.s.l., 8.08.1997, R.D. & V.Z.; 1 ♀ (ISEA), s.l., 1,300 m a.s.l., 6.08.1997, R.D. & V.Z.; 2 ♂♂, 1 ♀ (ISEA), s.l., 10 km S of Leninogorsk, Prokhodnoy Belok Mt., 1,700 m a.s.l., 9.08.1997, R.D. & V.Z.; 2 ♂♂, 1 ♀ (ISEA), s.l., ca. 20 km S of Leninogorsk, Cherepanovskiy Belok Mt., 1,700 m a.s.l., 7.08.1997, R.D. & V.Z.

DISTRIBUTION. This is a typical Siberian temperate species repeatedly reported from West and Central Siberia. Recorded as far in the west as Kola Peninsula and

Figs. 8-14. *Homolophus przewalskii* (Starega, 1978): 8 — male chelicera, lateral view; 9 — male body, dorsal view; 10 — penis, lateral view; 11 — ditto, dorsal view; 12 — male palp, lateral view; male ocularium, dorsal view; 14 — ditto, lateral view. Scale: 1 mm.

Рис. 8-14. *Homolophus przewalskii* (Starega, 1978): 8 — хелицера самца, латерально; 9 — тело самца, дорзально; 10 — пенис, латерально; 11 — то же, дорзально; 12 — палпа самца, латерально; 13 — глазной бугор самца, дорзально; 14 — то же, латерально. Масштаб: 1 мм.



Finnland [Heinäjoki, 1944; Starega, 1978; Mitov, 1993], in the south as far as Mongolia and Karakorum [Roewer, 1956; Starega, 1964; Gritsenko, 1980], and to the east as far as Korea [Gritsenko, 1979a, b]. All above records refer to *Euphalangium nordenskiöldi*, now transferred to *Homolophus* [cf. Cokendolpher, 1987]. All Siberian records of the species are shown in Map. 1.

HABITAT. The species can be collected in dry valley meadows (often under *Caragana* spp. bushes) and synanthropic habitats.

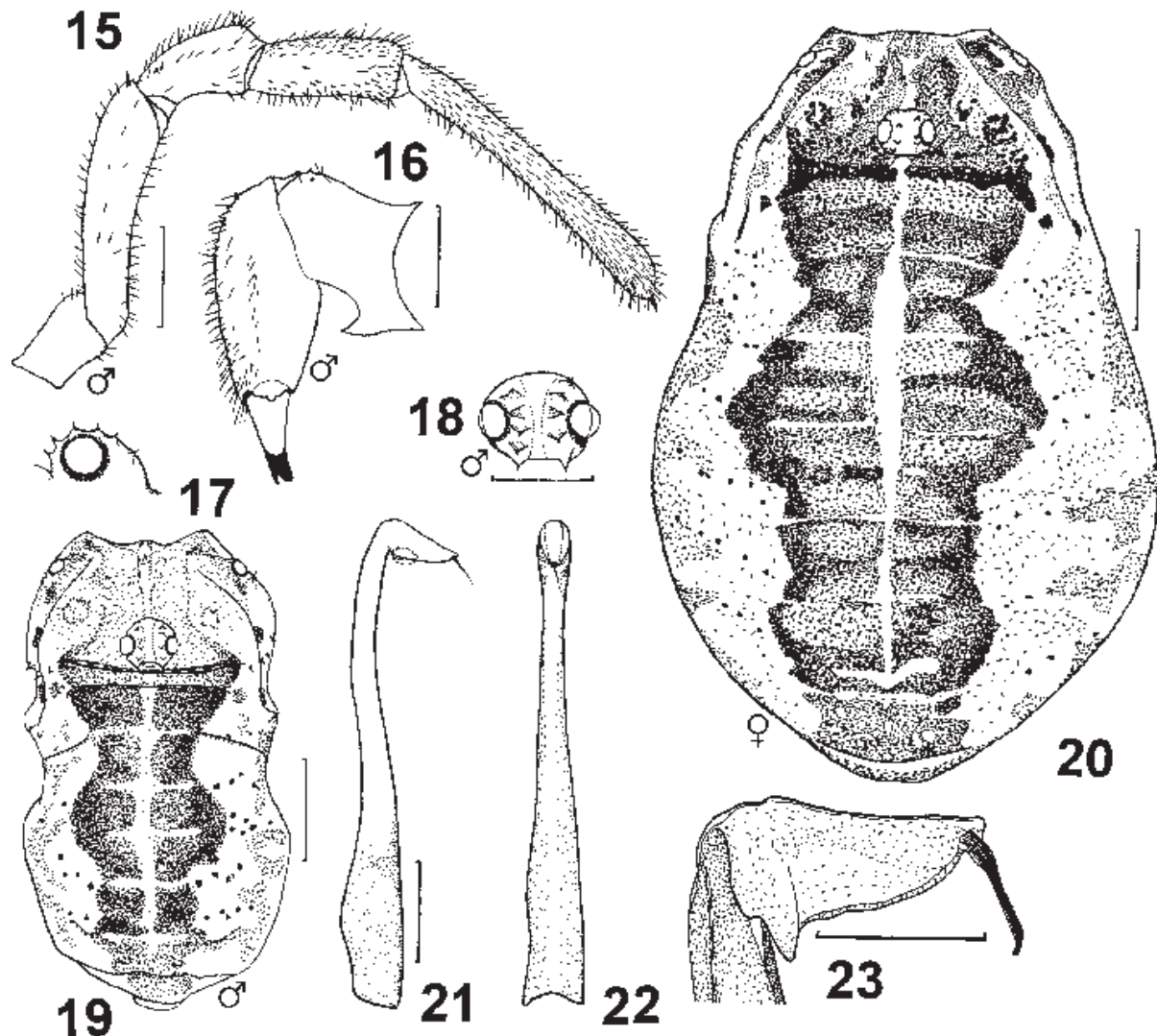
DESCRIPTION. MALE. Measurements. Total body length 6.70; body width 3.50; cephalothorax length 1.70; ocularium width 0.50; "clypeus" (space between ocularium and front margin of carapace) 0.90. Forceps length 0.70. Penis: length 3.00; width at base 0.35. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1.60	0.80	1.20	—	1.80	5.40
Leg:						
I	4.00	1.60	3.80	4.85	7.10	21.35
II	8.40	2.20	6.70	6.30	13.70	37.30
III	4.40	1.60	3.10	5.70	6.80	21.60
IV	6.40	1.90	4.80	8.00	9.10	30.20

Carapace dark brown, almost black (Fig. 3), with numerous black-tipped denticles disposed as follows: in front of eye tubercle and 3-4 on each side of eye tubercle closer to front edge, on sides, at anterior lateral angles, at anterior and posterior edges of scent glands, and in transverse rows on thoracic tergites. Glands well-marked.

Eye tubercle as shown in Fig. 1, usually darker than carapace, each carina armed with a longitudinal row of 4-5 denticles. Abdomen dark brown to black, with a longitudinal yellowish stripe. Chelicera of common structure (Fig. 7). Basal segment with apical setae and sparse denticles. Distal segment dorsally with 3-4 denticles, entirely setose. Palp as in Fig. 2. Femur (ventrally and dorsally) and patella (dorsally) armed with spine-tipped denticles. Tibia denticulate ventrally. Tarsus with microdenticles ventrally. Tarsal claw smooth. Legs I and III visibly thicker than legs II and IV. All legs armed with small acute inclined tubercles. Penis of typical structure, as shown in Figs 4-6.

FEMALE. Measurements. Total body length 9.70; body width 3.90; cephalothorax length 1.70; ocularium width 0.45; "clypeus" (space between ocularium and front margin of carapace): 0.80. Forceps length 0.50.



Figs. 15–23. *Mitopus morio* (Fabricius, 1779): 15 — male palp, lateral view; 16 — male chelicera, lateral view; 17 — male ocularium, lateral view; 18 — ditto, dorsal view; 19 — male body, dorsal view; 20 — female body, dorsal view; 21 — penis, lateral view; 22 — ditto, dorsal view; 23 — glans, lateral view. Scale: 0.5 mm (15–18, 21–23) and 1 mm (19, 20).

Рис. 15–23. *Mitopus morio* (Fabricius, 1779): 15 — палепа самца, латерально; 16 — хелицера самца, латерально; 17 — глазной бугор самца, латерально; 18 — тоже, дорзально; 19 — тело самца, дорзально; 20 — тело самки, дорзально; 21 — пенис, латерально; 22 — тоже, дорзально; 23 — головка пениса, латерально. Масштаб: 0,5 мм (15–18, 21–23) и 1 мм (19, 20).

Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1.20	0.60	0.90	–	2.10	4.80
Leg:						
I	2.80	1.90	2.70	4.10	5.70	17.20
II	6.80	2.10	6.00	5.60	12.80	33.30
III	3.20	1.20	2.90	4.50	6.40	18.20
IV	5.40	1.50	4.20	5.80	8.10	25.30

Female morphology as described for the male but usually females smaller and their coloration paler.

Homolophus przewalskii (Starega, 1978)
Figs 8–14, Map 4.

Phalangium nordenskiöldi var. *pallida* Kulczyński, 1901: 361 (non O.F. Müller, 1776).

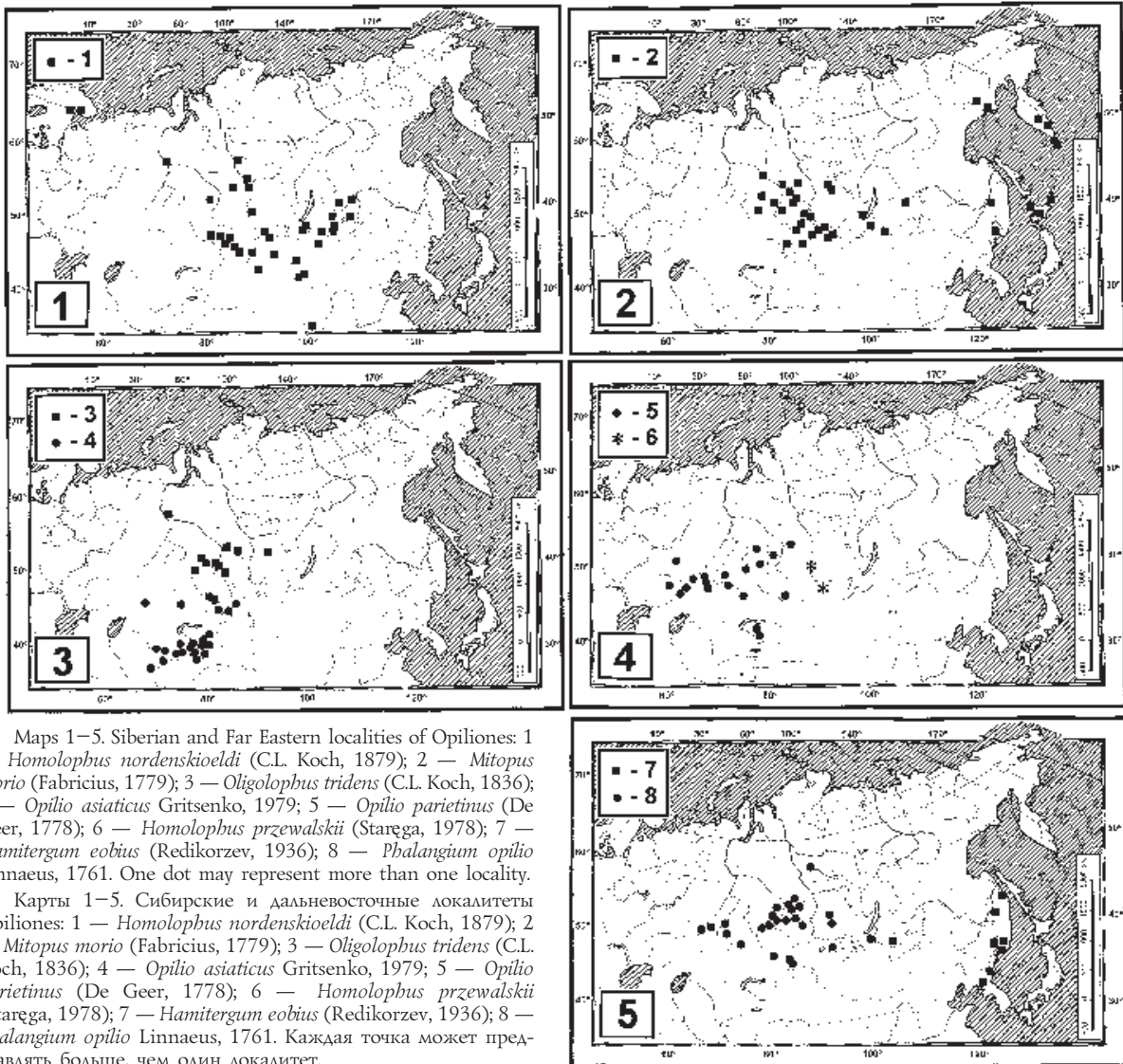
Euphalangium przewalskii Starega, 1978: 224 (nom.n. because of homonymy).

Homolophus przewalskii: Cokendolpher, 1987: 92 (transferred to *Homolophus*).

For a complete set of taxonomic sources see Starega [1978].

MATERIAL. TUV A: 1 ♂ (ISEA), Ovyurskiy Distr., 7–10 km W of Ak-Charaa, 40–45 km W of Oo-Shinaa, Irbitei River, 18–19.07.1993, D.L. & S.E. Tchernyshov.

DISTRIBUTION. Khakassia (Minussinsk) [Kulczyński, 1901: sub *Phalangium noedenskiöldi* var. *pallida*; Starega, 1978: sub *Euphalangium p.*] and Tuva (Ubu-Nur Depression) [current data] (Map 4). The



Maps 1–5. Siberian and Far Eastern localities of Opiliones: 1 — *Homolophus nordenskiöldi* (C.L. Koch, 1879); 2 — *Mitopus morio* (Fabricius, 1779); 3 — *Oligolophus tridens* (C.L. Koch, 1836); 4 — *Opilio asiaticus* Gritsenko, 1979; 5 — *Opilio parietinus* (De Geer, 1778); 6 — *Homolophus przewalskii* (Starega, 1978); 7 — *Hamitergum eobius* (Redikorzev, 1936); 8 — *Phalangium opilio* Linnaeus, 1761. One dot may represent more than one locality.

Карты 1–5. Сибирские и дальневосточные локалитеты Opiliones: 1 — *Homolophus nordenskiöldi* (C.L. Koch, 1879); 2 — *Mitopus morio* (Fabricius, 1779); 3 — *Oligolophus tridens* (C.L. Koch, 1836); 4 — *Opilio asiaticus* Gritsenko, 1979; 5 — *Opilio parietinus* (De Geer, 1778); 6 — *Homolophus przewalskii* (Starega, 1978); 7 — *Hamitergum eobius* (Redikorzev, 1936); 8 — *Phalangium opilio* Linnaeus, 1761. Каждая точка может представлять больше, чем один локалитет.

species has also been recorded in Kazakhstan, but without precise locality (for details see Starega [1978]).

HABITAT. In Tuva, the species has been collected in desert nanophanerophyte steppe (= tar steppe) habitats with *Nanophyton erinaceus*.

DESCRIPTION. MALE. Measurements. Total body length 9.90; body width 6.00; cephalothorax length 1.40; ocularium width 0.90; "clypeus" (space between ocularium and front margin of carapace) 2.70. Forceps length 1.30. Penis: length 5.40; width at base 0.80. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	2.60	1.20	1.60	—	2.80	8.20
Leg:						
I	5.10	2.20	4.10	5.70	7.40	24.50
II	8.70	2.50	6.60	7.10	12.30	36.10
III	5.70	2.40	4.20	6.40	8.40	27.40
IV	7.50	2.70	5.60	12.60	12.60	36.60

Male with a large and massive body (Fig. 9). Carapace (Fig. 9) with light brown patches and bands, equipped with numerous denticles disposed in groups as follows: in front of eye tubercle and 3–4 on each side of eye tubercle closer to front edge, on sides, at anterior lateral angles, at anterior and posterior edges of scent glands, and in transverse rows on thoracic tergites. Glands well-marked. Eye tubercle visibly darker than carapace (dark brown) (Figs 9, 13, 14), each carina armed with a row of 7–9 denticles. Abdomen lighter than carapace, equipped with numerous black-tipped denticles arranged in transverse and lateral rows. Chelicera very strong (Fig. 8). Basal segment dorsally with a group of large denticles. Distal segment widened, entirely setose, apically equipped with denticles. Palp strong (Fig. 12). Femur ventrally armed with spine-tipped tubercles, dorsally with smaller denticles. Patella denticulate dorsally and on sides. Tibia: ventrally with numerous spine-tipped denticles; dorsally with sparse spine-tipped denticles. Tarsus ventrally with micro-denticles, ventral and dorsal edges of tarsus setose. Tarsus entirely pubescent. Tarsal claw smooth. Legs I and III swollen. Penis long and of typical structure (Figs 10, 11).

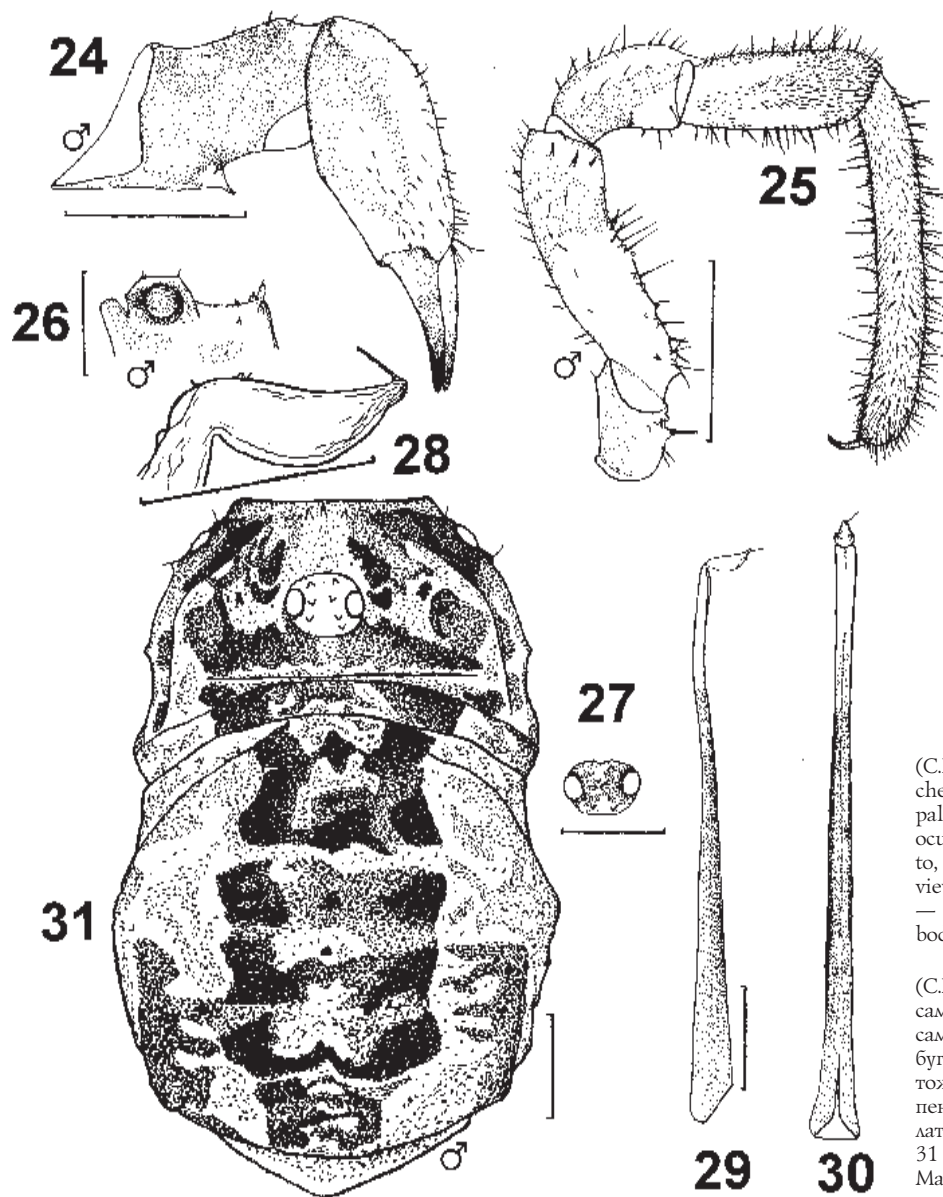


Fig. 24–31. *Oligolophus tridens* (C.L. Koch, 1836): 24 — male chelicera, lateral view; 25 — male palp, lateral view; 26 — male ocularium, lateral view; 27 — ditto, dorsal view; 28 — glans, lateral view; 29 — penis, lateral view; 30 — ditto, dorsal view; 31 — male body, dorsal view. Scale: 0.5 mm.

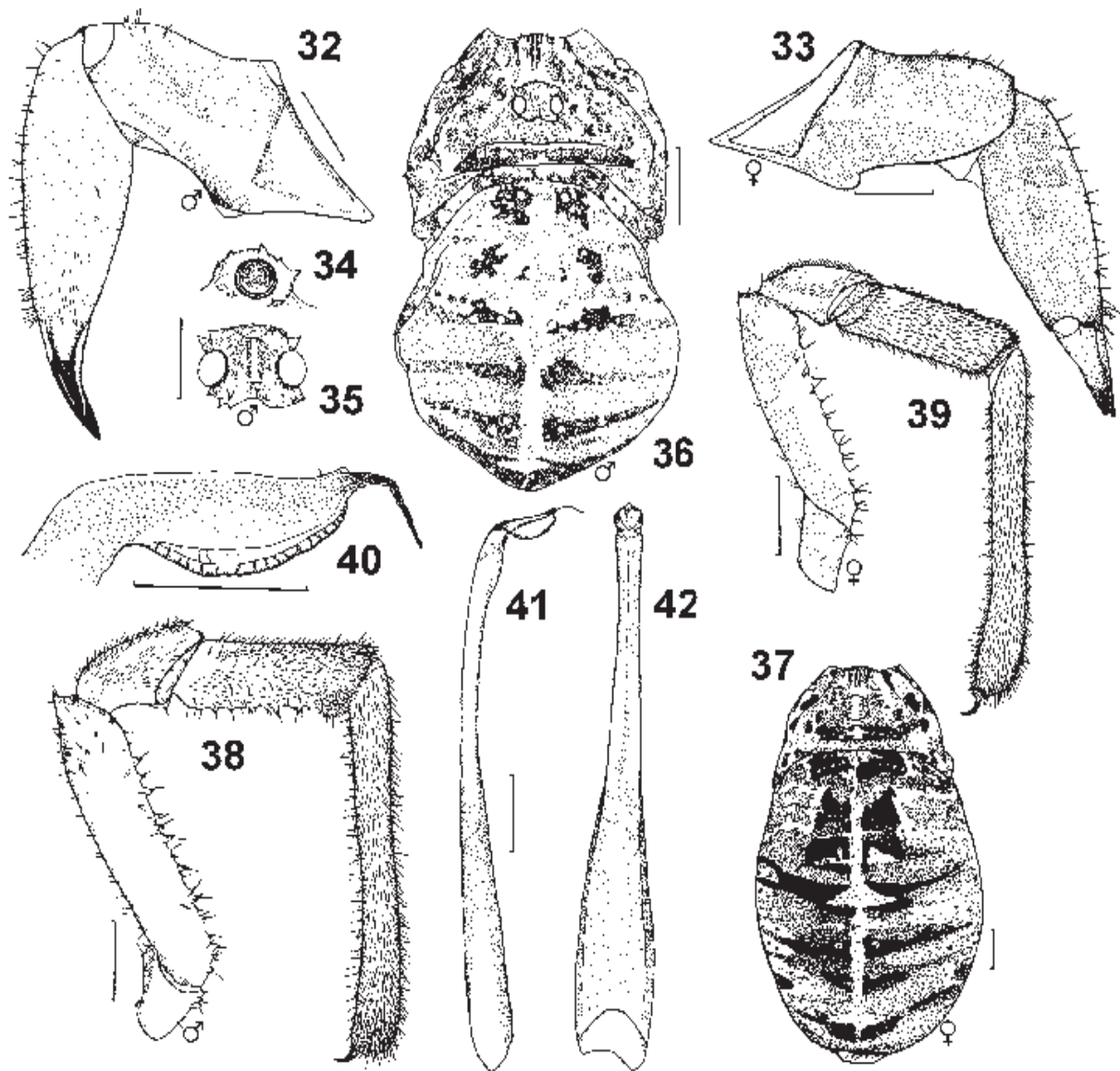
Рис. 24–31. *Oligolophus tridens* (C.L. Koch, 1836): 24 — хелицера самца, латерально; 25 — пальпа самца, латерально; 26 — глазной бугор самца, латерально; 27 — то же, дорзально; 28 — головка пениса, латерально; 29 — пенис, латерально; 30 — то же, дорзально; 31 — тело самца, дорзально. Масштаб: 0,5 мм.

Mitopus morio (Fabricius, 1779)

Figs 15–23, Map 2.

MATERIAL. TOMSK AREA: 5 ♂♂ (TSU), ca. 7 km W of Timiryazev, 10.07.1993, A.T.; 1 ♀ (TSU), Tomsk Distr., Anikino, 11.07.1994, S.Yu. Rakov; 3 ♂♂, 25 ♀♀ (TSU), s.l., 25.07.1996, A.T.; 3 ♂♂, 11 ♀♀ (TSU), same distr., Malinovka, 3.09.1996, A.T.; 2 ♂♂, 3 ♀♀ (TSU), same distr., Karnilovo, 13.08.1994, S.L.; 2 ♀♀ (TSU), same distr., Chernaya Rechka, 15.08.1994, S.L.; 1 ♂, 2 ♀♀ (TSU), Kargosok Distr., Zholti Yar, 3.08.1993, S.L.; 1 ♀ (ISEA), Luchanovo, 26–29.07.1988, S.A. Krivets. — KEMEROVO AREA: 34 ♂♂, 51 ♀♀, (TSU), Izhmorsk Distr., Lomachovka, 19.07–25.08.1995, V.R.; 9 ♀♀ (TSU), s.l., 16.07–6.08.1994, V.R.; 4 ♂♂, 1 ♀ (TSU), s.l., 25.07.1993, V.R.; 2 ♂♂, 3 ♀♀ (ISEA), Kuznetskiy Alatau, Tigirish Mt. Range, upper reaches of Algui River, 600 m a.s.l., 24.09.1997, R.D. & V.Z. — NOVOSIBIRSK AREA: 1 ♂, 4 ♀♀ (ISEA), Kolyvan' Distr., Boyarka, 24–27.07.1987, D.L.; 6 ♂♂, 11 ♀♀ (ISEA), Kargat Distr., 8–10 km NE of Verkh-Kargat, Makarievskiy, 27.08.1987, D.L.; 6 ♂♂, 5 ♀♀ (ISEA), Novosibirsk Distr., Koltsovo, 9–23.08.1987, D.L.; 2 ♂♂ (TSU), Krasnozerka, 15.07.1995, A.T.; 3 ♂♂, 7 ♀♀ (TSU), 3–4 km E of Krasnozerka, Karasuk River, 25.07.1995, A.T.; 12 ♂♂, 49 ♀♀ (ISEA), Toguchin

Distr., Kotorovo, 4.07–11.08.1986, S.R. — ALTAI: 11 ♂♂, 4 ♀♀ (ISEA), Lake Teletskoe, Artybash, 18–19.07.1992, V.D. — KRASNOYARSK PROVINCE: 3 ♂♂, 11 ♀♀ (ZMMU), Boguchansk Distr., KATEK, Chunoyar, 30.7.1984, E.B.; 2 ♂♂, 2 ♀♀ (ZMMU), s.l., near Sosnovka, 7–24.08.1993, E.B.; 1 ♂, 2 ♀♀ (ISEA), s.l., 24.08.1977, E.B.; 3 ♂♂, 5 ♀♀ (ISEA), Ermakovskoe Distr., ca. 14 km SW of Tanzybei, 400–500 m a.s.l., 13.07.1990, D.L.; 2 ♂♂, 4 ♀♀ (ISEA), same, Oisky Mt. Range, Oisky Pass, ca. 8 km S of Lake Oiskoe, 1,400–1,500 m a.s.l., 12.07.1990, D.L. — IRKUTSK AREA: 5 ♀♀ (ZMMU), Slyudyanka Distr., Slyudyanskiy Mt. Range, Maritui, 23–25.07.1990, K.G. Mikhailov. — KHAKASSIA: 2 ♂♂, 3 ♀♀ (ISEA), Askiz Distr., 40–45 km W of Askiz, 8–10 km E of Biriktchul', 16–18.07.1990, D.L.; 2 ♂♂, 7 ♀♀ (ISEA), Shyra Distr., ca. 1 km S of Kommunar, 1,300–1,400 m alt., 23.07.1990, D.L. — TUVA: 2 ♂♂, 3 ♀♀ (ISEA), Ovyurskiy Distr., 30–35 km W of Sagly, upper reaches of Onatsy River, 2,000–2,100 m a.s.l., 27.07.1993, D.L.; 2 ♂♂, 9 ♀♀ (ISEA), Mongun-Taiga Distr., 6–7 km E of Mugur-Aksy, upper reaches of Kuge-Dava River, Tsagan-Shibetu Mt. Range, 2,100–2,200 m a.s.l., 22.07.1993, D.L.; 4 ♂♂, 6 ♀♀ (ISEA), 25 km NW of Kyzyl, ca. 5 km NW of Seserligh, 1,000–1,100 m a.s.l., 25.07.1990, D.L.; 1 ♀ (ISEA), 13–15 km N of Khandagaity, Kham-Dag River, 26.07.1993, D.L.; 2



Figs. 32–42. *Opilio asiaticus* Gritsenko, 1979: 32 — male chelicera, lateral view; 33 — female chelicera, lateral view; 34 — male ocularium, lateral view; 35 — ditto, dorsal view; 36 — male body, dorsal view; 37 — female body, dorsal view; 38 — male palp, lateral view; 39 — female palp, lateral view; 40 — glans, lateral view; 41 — penis, lateral view; 42 — penis, dorsal view. Scale: 0.5 mm (32–35, 38–42) and 1 mm (36, 37).

Рис. 32–42. *Opilio asiaticus* Гритсенко, 1979: 32 — хелицера самца, латерально; 33 — хелицера самки, латерально; 34 — глазной бугор самца, латерально; 35 — то же, дорзально; 36 — тело самца, дорзально; 37 — тело самки, дорзально; 38 — пальпа самца, латерально; 39 — пальпа самки, латерально; 40 — головка пениса, латерально; 41 — пенис, латерально; 42 — то же, дорзально. Масштаб: 0,5 мм (32–35, 38–42) и 1 мм (36, 37).

♀♀ (ISEA), Sanghelen Mt. Range, middle flow of Dzhen-Aryk River, 50°24'N 95°26'E, 1,450 m a.s.l., 18.07.1996, Y.M.; 3 ♂♂, 10 ♀♀ (ISEA), 4 ♂♂, 23 ♀♀ (ZMMU), s.l., 50°29'N 95°25'E, 1,750–2,030 m a.s.l., 16–18.07.1996, Y.M. — BURYATIA: 1 ♂, 1 ♀ (ISEA), Selenga Distr., Tayozhnyi, Temnik River, 10.07.1985, B.Z.; 1 ♀ (ISEA), same distr., Selenga River, Murzino, 12.07.1985, B.Z. — CHITA AREA: 11 ♂♂, 11 ♀♀ (ISEA), 4 ♂♂, 4 ♀♀ (TUJ), 60–65 km SW of Kyra, Sokhondo Reserve, Upper Bukukun Stand, 1,600–1,650 m a.s.l., 3–7.08.1991, V.D. & V.P. Pekin; 2 ♂♂, 11 ♀♀ (ZMMU), Kalar Distr., Dogopchan, 15.07.1976, E.B. — YAKUTIA: 2 ♂♂ (ISEA), Kodar Mt. Range, Sredniy Sakukan River Valley, 1–3.08.1986, Starikovskii. — KHABAROVSK PROVINCE: 2 ♂♂, 6 ♀♀ (ISEA), 20–30 km SE of Khabarovsk, Bol'shoi Khlekhtsy Reserve, 19.07.1987, S.V. Ivanov. — PRIMORIE (= MARITIME PROVINCE): 1 ♀ (ISEA), "Kedrovaya Pad'"

Reserve, Goraiski Spring, 16.09.1978, B.Z. — MAGADAN AREA: 4 ♂♂, 9 ♀♀ (ISEA), ca. 29 km S of Magadan, Dukuch River, 22.07.1987, Y.M. — E-KAZAKHSTAN AREA: 1 ♂ (ISEA), W-Altai, Ivanovskiy Mt. Range, 17 km S of Leninogorsk, Serzhinskiy Belok Mt., 1,800–2,000 m a.s.l., 8.08.1997, R.D. & V.Z.; 1 ♂, 4 ♀♀ (ISEA), SW-Altai, E part of Narymskiy Mt. Range, upper reaches of Ozernaya River, 2,300–2,700 m a.s.l., 19.07.1997, R.D. & V.Z.; 1 ♀ (ISEA), SW-Altai, Kurchumskii Mt. Range, 5 km W of Lake Markakol', 1,700–2,200 m a.s.l., 13.07.1997, R.D. & V.Z.; 1 ♂, 1 ♀ (ISEA), s.l., 2,300–2,400 m a.s.l., 14.07.1997, R.D. & V.Z.

DISTRIBUTION. This is a Holarctic species [Martens, 1978] repeatedly reported from Siberia [Starega, 1978; Gritsenko, 1979a]. All Siberian and Far Eastern records of the species are shown in Map 2.

HABITAT. The species has been collected in mesophytic and moist meadows and clearings in birch and mixed forests, in sloping mesophytic steppes, in sparse mountain *Larix* forests, as well as in agrocoenosis (clover and alfalfa fields).

DESCRIPTION. See Martens [1978] and Suzuki & Tsurusaki [1983].

Oligolophus tridens (C.L. Koch, 1836)

Figs 24–31, Map 3.

MATERIAL. TOMSK AREA: 17 ♂♂, 3 ♀♀ (ISEA), Tomsk, 28.09.1986, S.L.; 4 ♂♂ (TSU), Tomsk Distr., ca. 7 km W of Timiryazovo, 10.07.1993, A.T.; 179 ♂♂, 169 ♀♀ (TSU), same, Anikino, 23.08.1995, S.Yu. Rakov; 216 ♂♂, 540 ♀♀ (TSU), s.l., 17.07–3.08.1996, A.T. — KEMEROVO AREA: 40 ♂♂, 48 ♀♀ (TSU), Izhmorsk Distr., Lomachovka, 16.07–18.08.1994, V.R.; 1 ♂, 2 ♀♀ (ISEA), Mezhdurechensk, Usa River, 23.09.1997, R.D. & V.Z. — NOVOSIBIRSK AREA: 1 ♂ (ISEA), Novosibirsk Distr., 3–5 km N of Zherebtsovo, 2.09.1994, S.E. Tchernyshov; 1 ♀ (ISEA), Chulyum Distr., Filimonovka, 2.09.1997, A.Yu. Kharitonov; 7 ♂♂, 23 ♀♀ (ZMMU), same, Kol'tsovo, 21.08.1987, D.L.; 1 ♂♂, 3 ♀♀ (ISEA), s.l., 1.10.1988, D.L.; 11 ♂♂, 16 ♀♀ (TUJ), s.l., 2.09.1994, D.L.; 4 ♂♂, 25 ♀♀ (TSU), Krasnozerka Distr., W of Krasnozerka, Karasuk River, 1–28.08.1995, A.T.; 7 ♂♂, 7 ♀♀ (ISEA), Kargat Distr., 8–10 km NE of Verkh-Kargat, Makarievsky, 25–27.08.1987, D.L.; 2 ♂♂ (ISEA), Iskitim Distr., Nizhne-Kamenka, 12.8.1987, D.L.; 2 ♂♂ (ISEA), same, Malinovka, Legostaevskiy Zakaznik, 1.10.1988, D.L. — KRASNOYARSK REGION: 15 ♂♂, 24 ♀♀ (ZMMU), KATEK, Boguchansk Distr., Chunoyar, Sosnovka River, 27.08.1977, E.B. — E-KAZAKHSTAN AREA: 1 ♀ (ISEA), W-Altai, 25 km NE of Ust'-Kamenogorsk, Ul'ba River, Topikha, 5.08.1997, R.D. & V.Z.

Comparative material. SAMARA AREA: 6 ♂♂, 39 ♀♀ (ISEA), ca. 35 km SE of Samara, Krasno-Samarskoe Forestry, 17.07–17.09.1994, I.N. Goreslavets; 2 ♂♂, 4 ♀♀ (ZMMU), 3 ♂♂, 6 ♀♀ (ISEA), Zhiguli Reserve, 07–09.1988, S.Yu. Krasnobaev.

DISTRIBUTION. This is a Euro-Siberian species [Martens, 1978], its distribution in the east probably delimited by the Yenisei River [Starega, 1978; Gritsenko, 1979a; current data]. All Siberian records of the species are shown in Map 3.

HABITAT. The species is a common resident of mesophytic meadows and clearings in birch or mixed forests.

DESCRIPTION. See Martens [1978].

Opilio asiaticus Gritsenko, 1979

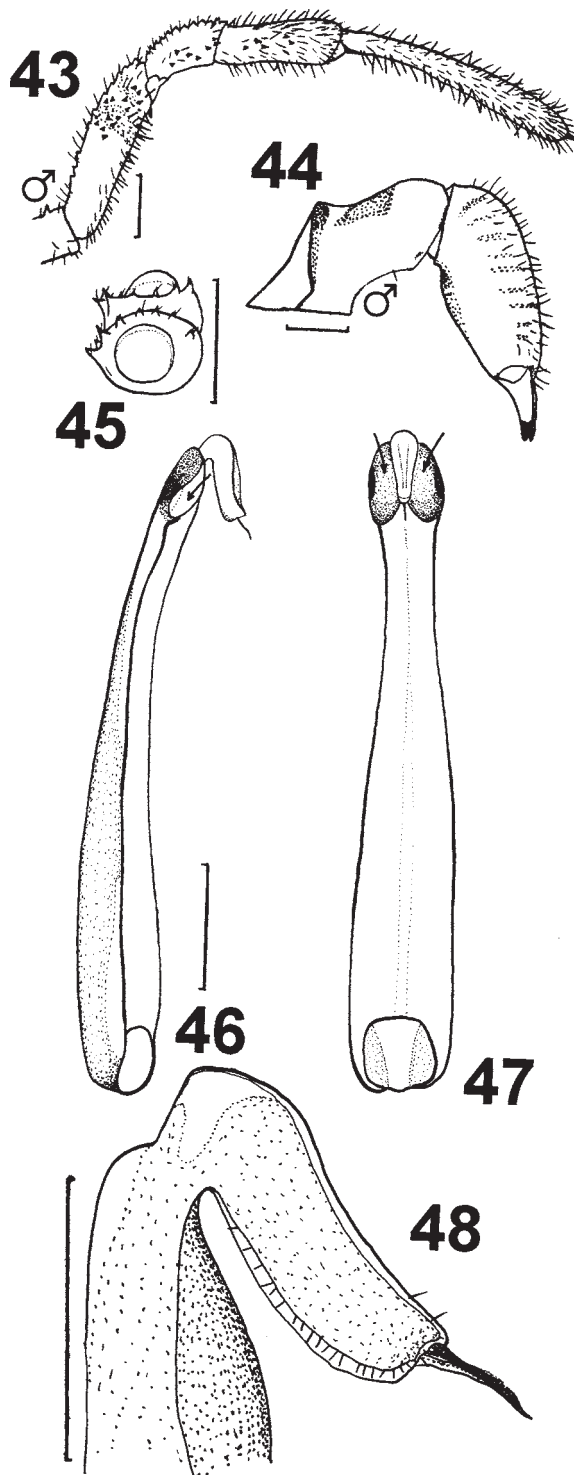
Figs 32–42, Map 3.

MATERIAL. E-KAZAKHSTAN AREA: 2 ♂♂ (ISEA), 2 ♂♂ (TUJ), Blue Bay, "Solmechnaya" Bukhta, Goluboi Bay, 12.08.1987, coll. ?; 1 ♀ (ISEA), 1 ♀ (TUJ), Katon-Karatal'ky Distr., Uru'l', Bukhtarma River Valley, 27.07.1987, coll. ?

DISTRIBUTION. The species is widespread in Middle Asia and Kazakhstan (Map. 3) [Gritsenko, 1979a, 1980; current data].

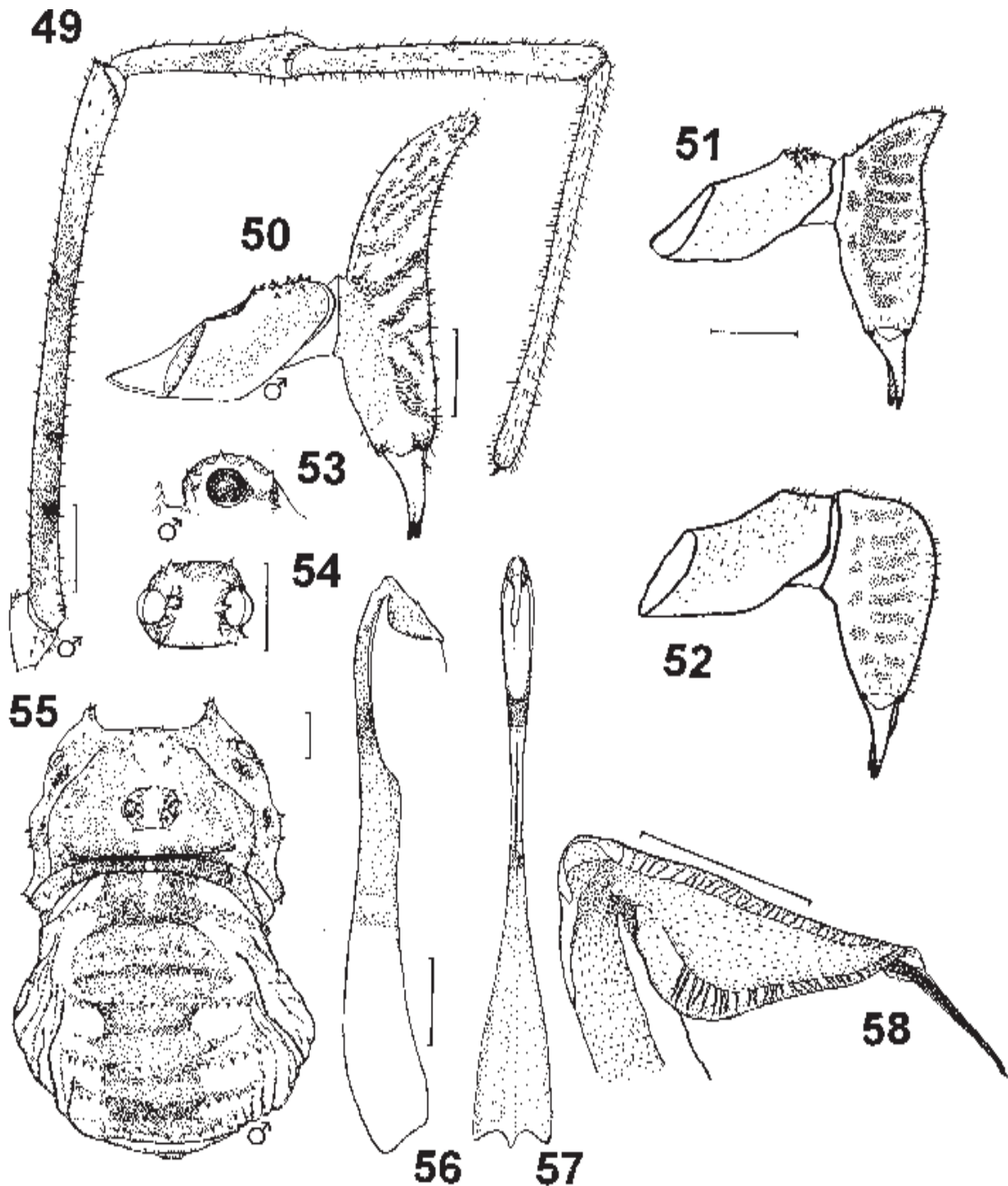
NOTES. It is very likely that *Opilio asiaticus* is only a colour morph of *Opilio almasyi* Roewer, 1911 [for distinguishing colour characters see Gritsenko, 1979], which has been described and so far known from Tian Shan Mts only [Roewer, 1911; Gritsenko, 1980]; i.e. the ranges of both species coincide completely. The problem is open until more specimens, including types of both species, are studied.

HABITAT. According to the habitat labels of the studied specimens, this species can be collected in a *Betula* forest (under stones and on tree trunks), but



Figs. 43–48. *Opilio parietinus* (De Geer, 1778): 43 — male palp, lateral view; 44 — male chelicera, lateral view; 45 — male ocularium, dorsal view; 46 — penis, lateral view; 47 — ditto, dorsal view; 48 — glans, lateral view. Scale: 0.5 mm.

Рис. 43–48. *Opilio parietinus* (De Geer, 1778): 43 — пальпа самца, латерально; 44 — хелицера самца, латерально; 45 — глазной бугор самца, дорзально; 46 — пенис, латерально; 47 — то же, дорзально; 48 — головка пениса, латерально. Масштаб: 0,5 мм.



Figs. 49–58. *Phalangium opilio* Linnaeus, 1761: 49 — male palp, lateral view; 50, 51 — male chelicera, lateral view, variability; 52 — female chelicera, lateral view; 53 — male ocularium, lateral view; 54 — ditto, dorsal view; 55 — male body, dorsal view; 56 — penis, lateral view; 57 — ditto, dorsal view; 58 — glans, lateral view. Scale: 0.5 mm (53, 54) and 1 mm (49–52, 55–58).

Рис. 49–58. *Phalangium opilio* Linnaeus, 1761: 49 — палепа самца, латерально; 50, 51 — хелицера самца, латерально, изменчивость; 52 — хелицера самки, латерально; 53 — глазной бугор самца, латерально; 54 — то же, дорзально; 55 — тело самца, дорзально; 56 — пенис, латерально; 57 — то же, дорзально; 58 — головка пениса, латерально. Масштаб: 0,5 мм (53, 54) и 1 мм (49–52, 55–58).

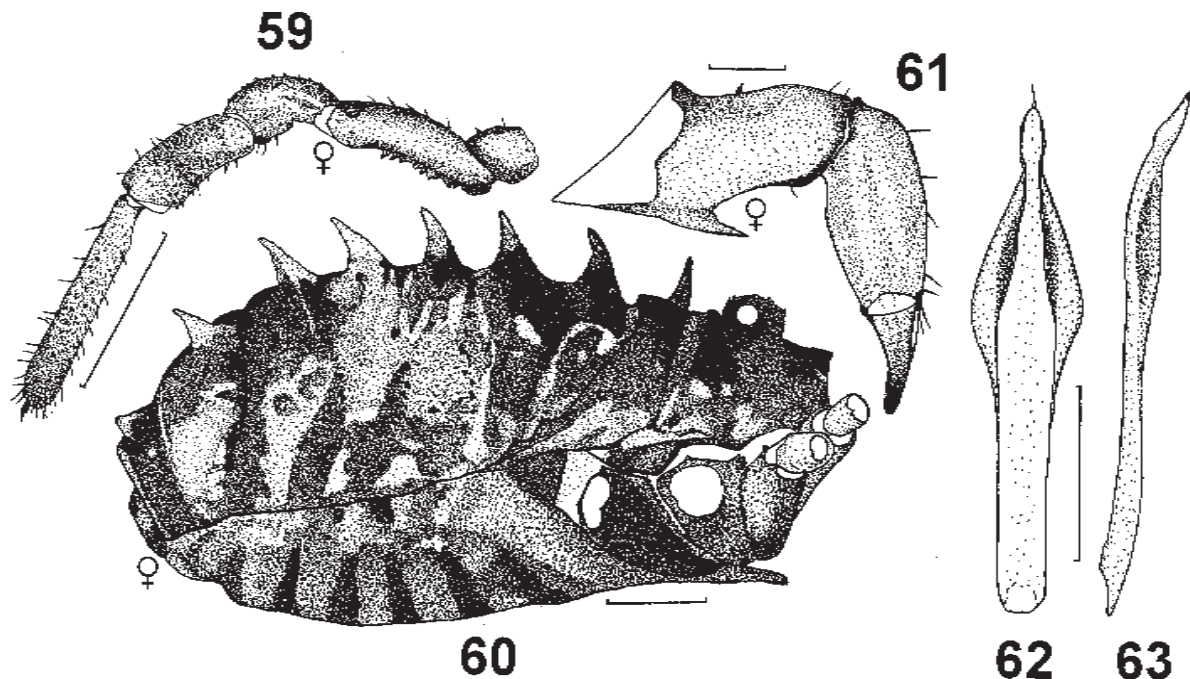
Gritsenko [1980] reported that *Opilio asiaticus* also occurred on river and lake banks, on rocks and bushes in the forest-steppe, steppe and desert zones of Kazakhstan and Central Asia.

DESCRIPTION. See Gritsenko [1980].

Opilio parietinus (De Geer, 1778)

Figs 43–48, Map 4.

MATERIAL. TOMSK AREA: 1 ♂, 2 ♀♀ (TSU), Tomsk Distr., ca. 7 km N of Timiryazovo, 12.07–13.08.1994, A.T.; 1 ♂, 1 ♀



Figs. 59–63. *Hamitergum eobius* (Redikorzev, 1936): 59 — male palp, lateral view; 60 — female body, lateral view; 61 — female chelicera, lateral view; 62 — penis, lateral view; 63 — ditto, dorsal view. Scale: Масштаб: 0.1 mm (61) and 0.5 mm (59, 60, 62–63).

Рис. 59–63. *Hamitergum eobius* (Redikorzev, 1936): 59 — палепа самки, латерально; 60 — тело самки, латерально; 61 — хелицера самки, латерально; 62 — пенис, латерально; 63 — то же, дорзально. Масштаб: 0.1 мм (61) и 0,5 мм (59, 60, 62–63).

(ISEA), s.l., 12.07.1993, A.T.; 2 ♂♂ (TSU), Anikino, 25.07.1996, A.T.; 1 ♂ (ISEA), Tomsk, 18.07.1994, A.T. — NOVOSIBIRSK AREA: 2 ♂♂, 4 ♀♀ (ISEA), Karasuk Distr., ca. 15 km W of Karasuk, 11.08.1992, V.D.; 2 ♂♂, 1 ♀ (TSU), Krasnozerka Distr., S of Krasnozerka, 19.07.1995, A.T.; 1 ♂, 3 ♀♀ (ISEA), same, 1–5 km W of Krasnozerka, 10.08.1992, V.D. & S.E. Tchernyshov; 8 ♂♂, 4 ♀♀ (TSU), Kochki Distr., near Kochki, 17–20.08.1995, A.T.; 1 ♂, 4 ♀♀ (ZMMU), Kolyvan' Distr., Boyarka, 2.08.1987, D.L.; 1 ♂, 1 ♀ (ISE), Chany Distr., Chany Lake, 15.08.1992, V.D. & S.E. Tchernyshov. — ALTAI: 2 ♀♀ (ISEA), Listvyaga Mt. Range, 12 km SW of Tesninskiy Belok Mt., Serechikhha River, 900–1,200 m a.s.l., 26.07.1997, R.D. & V.Z.

DISTRIBUTION. This is a Holarctic species [Martens, 1978] repeatedly reported from Siberia [Starega, 1978; Gritsenko, 1979a, 1980]. All Siberian records of the species are shown in Map 4.

HABITAT. Mixed and deciduous (*Betula*) forests, mesophytic steppes, as well as various synanthropic habitats.

DESCRIPTION. See Martens [1978].

Phalangium opilio Linnaeus, 1758

Figs 49–58, Map 5.

MATERIAL. TOMSK AREA: 6 ♂♂, 2 ♀♀ (TSU), 5 ♂♂, 1 ♀ (TUJ), Tomsk Distr., ca. 7 km N of Timiryazev, 7–19.07.1993, A.T.; 8 ♂♂, 5 ♀♀ (TSU), same, Anikino, 29.07.1996, A.T.; 3 ♂♂, 3 ♀♀ (TSU), same, Malinovka, 3.09.1996, A.T.; 2 ♂♂, 1 ♀ (ZMMU), Shegarka Distr., near Kireyevsk, 23.07.1993, S.L.; 1 ♂ (ISEA), same, Bogashevo, 5.09.1993, S.L. — KEMEROVO AREA: 16 ♂♂, 31 ♀♀ (TSU), Izhmorsk Distr., Lomachovka, 7–29.08.1995, V.R.; 1 ♀ (ZMMU), near Kemerovo, 21.08.1994, I.I. Goreslavets. — NOVOSIBIRSK AREA: 2 ♂♂ (ISEA), Kolyvan' Distr., Boyarka, 2.08.1987, D.L.; 7 ♂♂ (ISEA), Novosibirsk Distr., 3–5 km N of Zherebtsovo, 27.08–3.09.1993, S.E. Tchernyshov; 4 ♂♂ (ISEA), same, Chik, 23.08.1994, S.E. Tchernyshov; 19 ♂♂, 15 ♀♀ (TSU), Kochki Distr., W of Kochki, 3.07–12.08.1995, A.T.; 4 ♂♂, 9 ♀♀

(TSU), Krasnozerka Distr., E of Krasnozerka, 14.07–25.8.1995, A.T.; 10 ♂♂, 8 ♀♀ (ISEA), Baraba, near Kaily, 08.1961, coll. ? — KRASNOYARSK PROVINCE: 1 ♂ (ZMMU), middle flow of Yenisei River, Mirnoe, 3.08.1988, A.B. Ryvkin. — KHAKASSIA: 1 ♂ (ZMMU), Shira Distr., 2–3 km E of Shira, Lake Itkul', 22.07.1990, D.L. — TUVA: 1 ♂ (ISEA), near Kyzyl, right bank of Yenisei River, 7.06.1989, D.L. — E-KAZAKHSTAN AREA: 2 ♂♂ (ISEA), Ust'-Kamenogorsk, Irtysh River Valley, 28.08.1987, V.K. Zinchenko; 2 ♀♀ (ISEA), W-Altai, 25 km NE of Ust'-Kamenogorsk, Ul'ba River, Topikha, 5.08.1997, R.D. & V.Z.; 1 ♀ (ISEA), SW-Altai, E part of Azutau Mt. Range, 10 km SW of Urunkhayka, 2,200–2,300 m a.s.l., 18.06.1997, R.D. & V.Z.; 4 ♂♂, 1 ♀ (ISEA), Katon-Karatal'ky Distr., Uryl', Bukhtarma River Valley, 27.07.1987, V.Z.; 4 ♂♂, 1 ♀ (ZMMU), s.l., Irtysh River Valley, 28.08.1987, V.Z.

Comparative material. SAMARA AREA: 2 ♂♂, 13 ♀♀ (ISEA), Zhiguli Reserve, 07–09.1988, S.Yu. Krasnobaev.

DISTRIBUTION. This is a common Holarctic species [Martens, 1978] repeatedly reported from Siberia and the Far East [Starega, 1978; Gritsenko, 1979a,b, 1980; Suzuki & Tsurusaki, 1983]. All Siberian and Far Eastern records of the species are shown in Map 5.

HABITAT. In Siberia, the species occurs in moist and mesophytic deciduous and mixed forests as well as in different anthropogenic habitats.

DESCRIPTION. See Martens [1978] and Suzuki & Tsurusaki [1983].

Family GAGRELLIDAE Thorell, 1889

Hamitergum eobius (Redikorzev, 1936)

Figs 59–63, Map 5.

Lophacanthus eobius Redikorzev, 1936, 46, ff. 20–21.

Lophacanthus eobius: Gritsenko, 1979a: 126; Gritsenko, 1979b: 33.

Hamitergum eobius: Crawford, 1992: 22.

MATERIAL. KRASNOYARSK PROVINCE: 2 ♂♂, 6 ♀♀ (ISEA), Kolisy, 19.09.1988, A.B. Ryvkin. — CHITA AREA: 2 ♀♀ (ISEA), 1 ♀ (TUJ), Kyra Distr., 60–65 km SW of Kyra, Sokhondo Reserve, 1300–1600 m a.s.l., 3–26.06.1991, D.L. & B.Z. — KHABAROVSK PROVINCE: 4 ♂♂, 2 ♀♀ (ISEA), 2 ♂♂, 1 ♀ (TUJ), 20–25 km SE of Khabarovsk, Bol'shoi Khekhtsyrs Reserve, 150–900 m a.s.l., 7–24.06.1987, D.L.; 8 ♂♂, 6 ♀♀ (ISEA), 1 ♂, 2 ♀♀ (ZMMU), s.l., 200–900 m a.s.l., 7–22.06.1987, D.L. — MARITIME PROVINCE: 1 ♂, 2 ♀♀ (ISEA), "Kedrovaya Pad'" Reserve, 12.10.1976, B.Z.; 1 ♂ (ZMMU), Suputinsky Reserve, 19.09.1979, coll. ?

DISTRIBUTION. Chita Area, the Russian Far East and N-Korea (elsewhere reported sub *Lophacanthus e.*) [Redikorzev, 1936; Charitonov, 1957; Starega, 1965, 1978; Gritsenko, 1979a,b; current data], with the Sokhondo Reserve serving as the westernmost locality for the species' range (see Map 5).

HABITAT. The species has been collected in moist deciduous and mixed forests (in litter) and in stony debris with moss cover.

DESCRIPTION. MALE. Measurements. Total body length 2.60; body width 1.85; cephalothorax length 0.80; ocularium width 0.20; "clypeus" (space between ocularium and front margin of carapace) 0.20. Forceps length 0.50. Penis: length 1.70; width at base 0.20. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1.10	0.60	0.70	–	1.20	3.60
Leg:						
I	1.90	1.00	2.20	2.40	4.10	11.60
II	2.70	0.60	2.60	2.30	4.50	12.70
III	1.40	0.40	1.10	1.80	1.60	6.30
IV	1.70	0.60	1.90	2.60	2.40	9.20

Body black-brown, heavily sclerotized with a papillate dorsal surface, carapace adenticulate. Carapace rather small, almost 3 times as short as abdomen (Fig. 60). Glands quite small, almost invisible in dorsal view. Eye tubercle black-brown, dorsally with small spicules and setae as shown in Fig. 60. Metapeltidium with a strong median protruding spine. Abdomen with a median row of strong protruding thorns (Fig. 60), front of which usually darker (black). Chelicerae, palps and all legs dark brown. Chelicera as shown in Fig. 61: basal segment with a long ventromedial spur; distal segment setose. Palp (Fig. 59): all segments setose but femur ventrally armed with denticles; tarsus, tibia and patella densely covered with small denticles; tarsal claw pectinate. Penis with a keel structure as showed in Figs. 62, 63.

FEMALE. Measurements. Total body length 3.70; body width 2.20; cephalothorax length 1.10; ocularium width 0.20; "clypeus" (space between ocularium and front margin of carapace) 0.20. Forceps length 0.40. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1.00	0.60	0.80	–	1.20	3.60
Leg:						
I	1.30	0.30	0.90	1.10	2.00	5.60
II	2.10	0.40	2.60	1.70	4.20	10.40
III	1.00	0.40	1.00	1.40	1.70	5.50
IV	2.00	0.60	1.70	2.60	2.40	9.30

Female body and coloration as described for male, but female abdomen is usually thicker and more strongly rounded.

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