

The harvestman fauna of the Urals, Russia, with a key to the Ural species (Arachnida: Opiliones)

Фауна сенокосцев (Arachnida: Opiliones) Урала (Россия) с определителем уральских видов

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KEY WORDS: harvestmen, fauna, Urals, key.

КЛЮЧЕВЫЕ СЛОВА: сенокосцы, фауна, Урал, определительный ключ.

ABSTRACT. The paper presents the results of a faunistic survey of the harvestmen (ten species) occurring in the Ural region, Russia. All species are figured and keyed, and their distribution in the region mapped; complete reference lists for each species with regard to the study area are given as well. *Lacinius ephippiatus* (C.L. Koch, 1835), *?Egaenus* sp., *Opilio parietinus* (DeGeer, 1778) and *Lophopilio palpalis* (Herbst, 1799) are new to the Ural list.

РЕЗЮМЕ. Работа представляет результаты фаунистических исследований сенокосцев (10 видов), обитающих на Урале. Все виды снабжены рисунками и картами с их распространением в регионе; также к каждому виду даны полные списки библиографических ссылок, касающиеся изученной территории. *Lacinius ephippiatus* (C.L. Koch, 1835), *?Egaenus* sp., *Opilio parietinus* (DeGeer, 1778) и *Lophopilio palpalis* (Herbst, 1799) — новые виды для фауны Урала. Приводится ключ для уральских видов сенокосцев.

Introduction

Information concerning the harvestman fauna of the Ural region, Russia has hitherto remained fragmentary and insufficient. First Simon [1891] referred to two species; one of these, *Homolophus nordenskiöldi* (L. Koch, 1879), has been recorded in Transuralia, between Berezovo and Khanty-Mansiisk along the Ob River, and the second, *Mitopus morio* (Fabricius, 1779), in the North Urals, between Tschugor River, Europe and Lyapin, West Siberia. With respect to the Ural region, Starega's [1978] catalogue of the harvestman fauna of the USSR also contains data referring to these two species only. Later, Chevrizov [1979] recorded *Homolophus nordenskiöldi* in Bashkiria, while Esyunin & Korobein-

ikov [1988] have described the biology and ecology of *Mitopus morio* in the southern Yamal Peninsula.

Recently, two papers devoted to the harvestman fauna of Basegi Mountain Range [Esyunin, 1991] and Visimskii Nature Reserve [Ukhova, Esyunin, 1996], both localities lying within the Middle Urals, have appeared. Four species, *Nemastoma lugubre* (O.F. Müller, 1776), *Oligolophus tridens* (C.L. Koch, 1836), *Rilaena triangularis* (Herbst, 1799), and *Mitopus morio*, have been found in each of the places. In addition, a few ecological papers mention several harvestman species with respect to the Perm Area [Esyunin, Batalin, 1995; Esyunin et al., 1996; Gridina, 1997], with *Phalangium opilio* Linnaeus, 1758 recorded there for the first time.

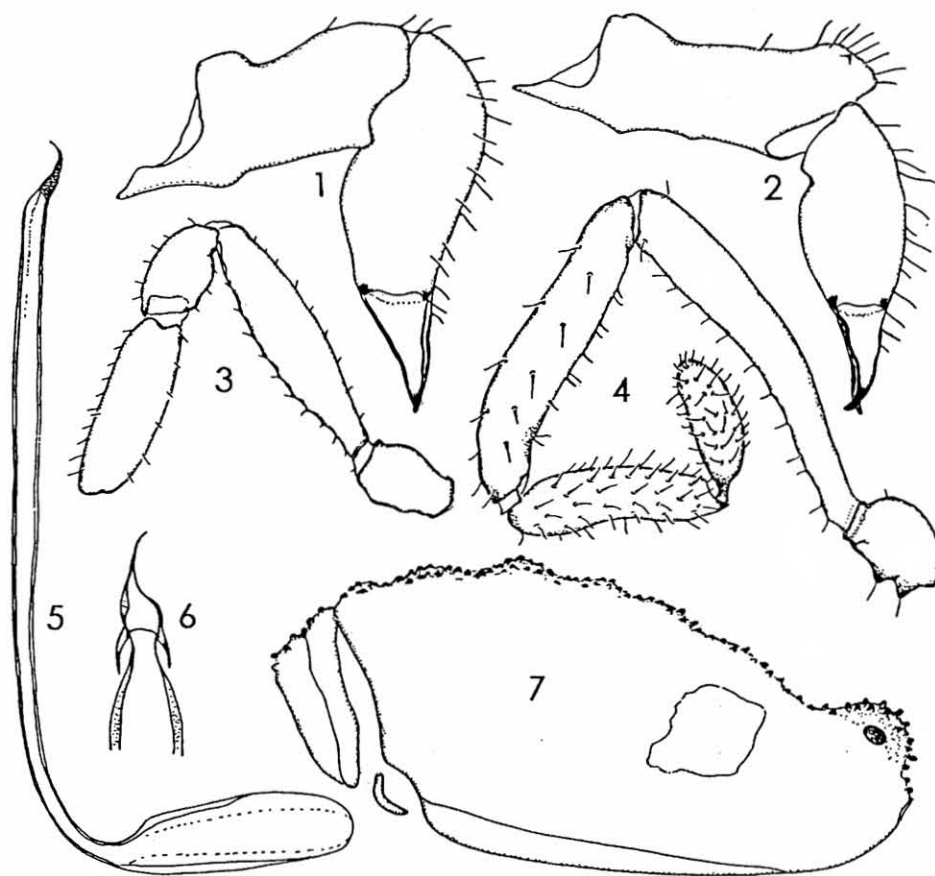
For this reason alone, the faunistics and distribution of Opiliones in the Ural region can generously be termed as poorly documented. The current study deals with ten harvestman species in the Urals and Cisuralia.

Most of the samples treated below were collected by Dr. S.L. Esyunin (abbreviated in the text as SLE), Dr. V.E. Efimik (VEE), Miss N.S. Mazura (NSM), Dr. V.O. Kozminykh (VOK), Miss G.Sh. Farzalieva (GSF). Material has been deposited in the collection of the Department of Zoology of the Perm State University.

The world distribution of species is given after Starega [1978], with additions from Gritsenko [1979] and Chevrizov [1979]. Terminology concerning ovipositor structure is that of Cokendolpher [1984].

The geographical division of the Ural region is that after Esyunin & Efimik [1996].

The following abbreviations are used in the text: «clypeus» — space between ocularium and front margin of carapace; Fm — femur; Mt — metatarsus; Pt — patella; Tb — tibia; Tr — trochanter. Size of body and legs is given as Total(Minimum–Maximum). All measurements are in mm.



Figs 1–7. *Nemastoma lugubre* (O.F. Müller, 1776): 1 — female chelicera; 2 — male chelicera; 3 — leg I without tarsus; 4 — palp; 5 — penis, lateral view; 6 — glans, dorsal view; 7 — body, lateral view.

Рис. 1–7. *Nemastoma lugubre* (O.F. Müller, 1776): 1 — хелицера самки; 2 — хелицера самца; 3 — нога I без лапки; 4 — пальпа; 5 — пенис, латерально; 6 — головка пениса, дорсально; 7 — тело, латерально.

A check-list

Suborder Palpatores

Superfamily Troguloidea

Family Nemastomatidae

Subfamily Nemastomatinae

Nemastoma lugubre (O.F. Müller, 1776)

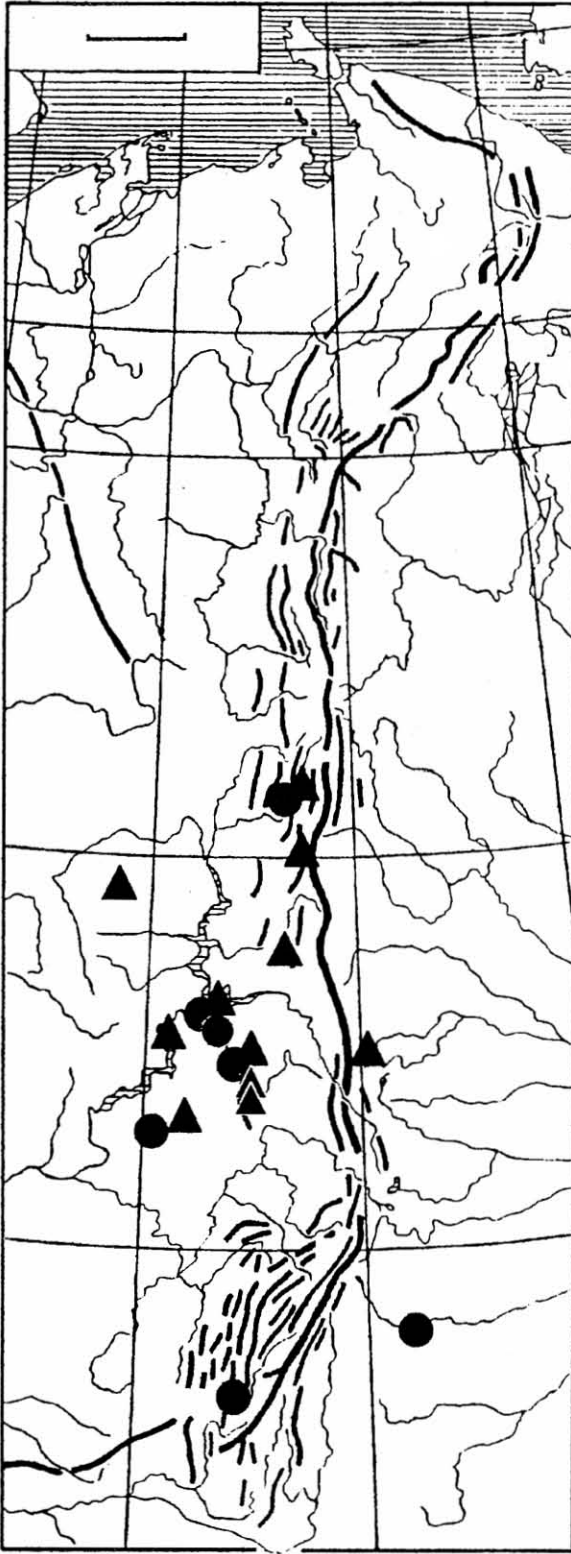
Figs 1–7, 89; Map 1.

MATERIAL. North Urals: 3 ♂♂, Perm Area, Kochevo District, Sepol, *Pinus-Picea* and *Betula* forests, pitfall trapping, VIII.1999, VEE; 11 ♂♂, 12 ♀♀, Perm Area, Krasnovishersk District, Visherskii Nature Reserve, *Picea* and *Betula* forests, meadow, litter, pitfall trapping, VI–VIII.1995, NSM; 12 ♂♂, 14 ♀♀, Perm Area, Krasnovishersk District, Kvar Kush Mt. Range, *Picea* forest, *Betula* forest with high herbage, *Abies-Picea* open woodland, elfin *Betula* woodland, litter, pitfall trapping, VII.1996, NSM. Middle Urals: 1 ♂, Perm City, recreation park, *Betula* forest, pitfall trapping, VI.1994, SLE; 9 ♂♂, 5 ♀♀, environs of Perm City, *Picea-Tilia* forest, multiherbaceous *Calamagrostis* meadow, meadow bog, pitfall trapping, IX–XI.1987–1989, SLE; 4 ♂♂, Perm Area, Perm District,

Kachka, *Betula* forest, pitfall trapping, V and XI.1994, SLE; 18 ♂♂, 5 ♀♀, Perm Area, Kishert District, Preduralie Nature Reserve, lime forest, pitfall trapping, IX.1988, T.I. Gridina; 18 ♂♂, 7 ♀♀, Perm Area, Kungur District, «Spasskaya Gora» Protected Landscape, multiherbaceous *Stipa* and stone steppes, *Tilia-Betula* and *Betula* forests, pitfall trapping, VIII–X.1987, 1988, 1994, SLE; 1 ♀, Perm Area, Barda District, Sarashi, *Quercus* forest, pitfall trapping, VI.1991, VOK; 1 ♂, 1 ♀, Perm Area, Orda District, Shlyapniki, multiherbaceous *Betula* forest, litter, VII.1995, SLE; 23 ♂♂, 34 ♀♀, Perm Area, Gornozavodsk District, Basegi Nature Reserve, mountain tundra with *Vaccinium myrtillus*, *Picea* open woodland, *Betula* elfin woodland, pitfall trapping, VII.1988, SLE; 14 ♂♂, 6 ♀♀, Ekaterinburg (= Sverdlovsk) Area, Visimskii Nature Reserve, *Picea* and *Betula* forests, windfall-forest, litter, pitfall trapping, VI–VIII.1993, 1996, 1999, SLE, GSF & N. Lokteeva.

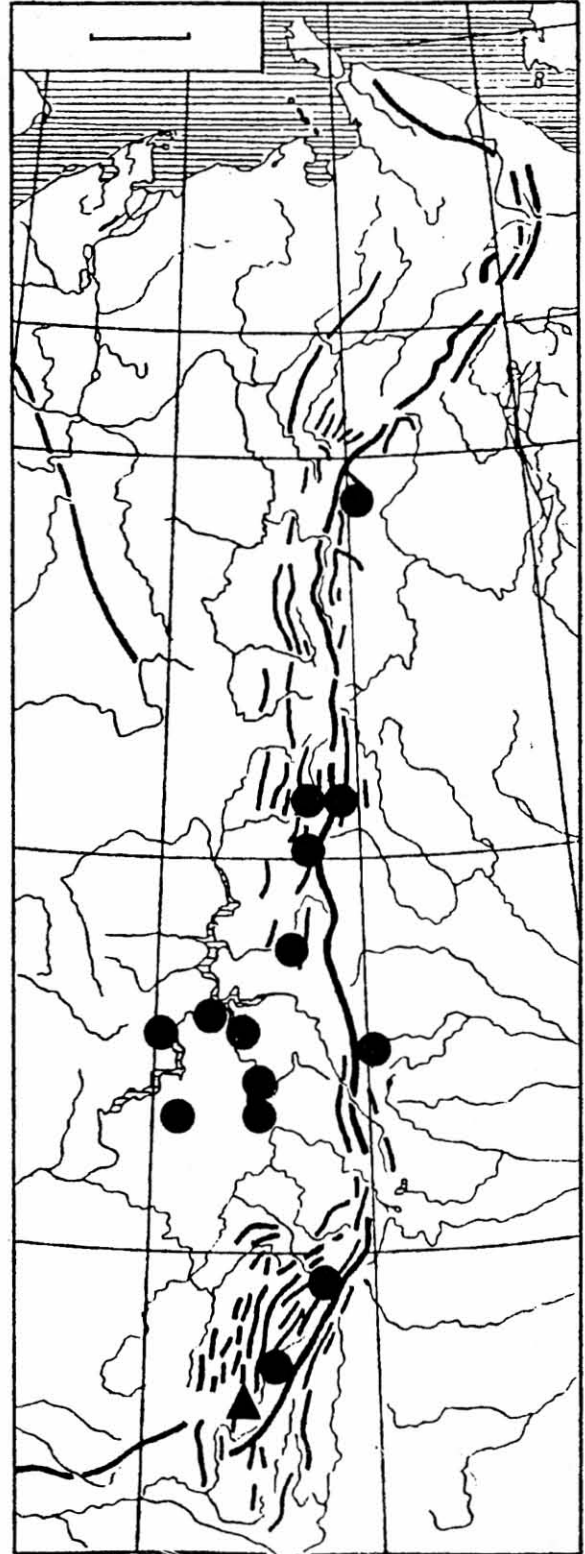
DESCRIPTION. For somatic characteristics see Martens [1978]. Measurements. **MALE.** Carapace (Fig. 7) width 1.01 (0.85–1.13); «clypeus» 0.10 (0.08–0.11). Length of leg I (Fig. 3): Fm 0.88 (0.75–1.00); Pt 0.33 (0.30–0.38); Tb 0.61 (0.53–0.70). Length of palp (Fig. 4): Fm 0.72 (0.65–0.83); Pt 0.58 (0.50–0.65); Tb 0.42 (0.30–0.50); Tr 0.29 (0.25–0.33). Penis as in Figs 5 & 6.

FEMALE. Carapace width 1.12 (1.00–1.33); «clypeus» 0.10 (0.07–0.11). Length of leg I: Fm 0.91 (0.85–0.95); Pt 0.33 (0.30–0.35); Tb 0.62 (0.58–0.65). Length of palp: Fm 0.78 (0.73–0.83); Pt 0.61 (0.58–0.68); Tb 0.47 (0.43–0.53);



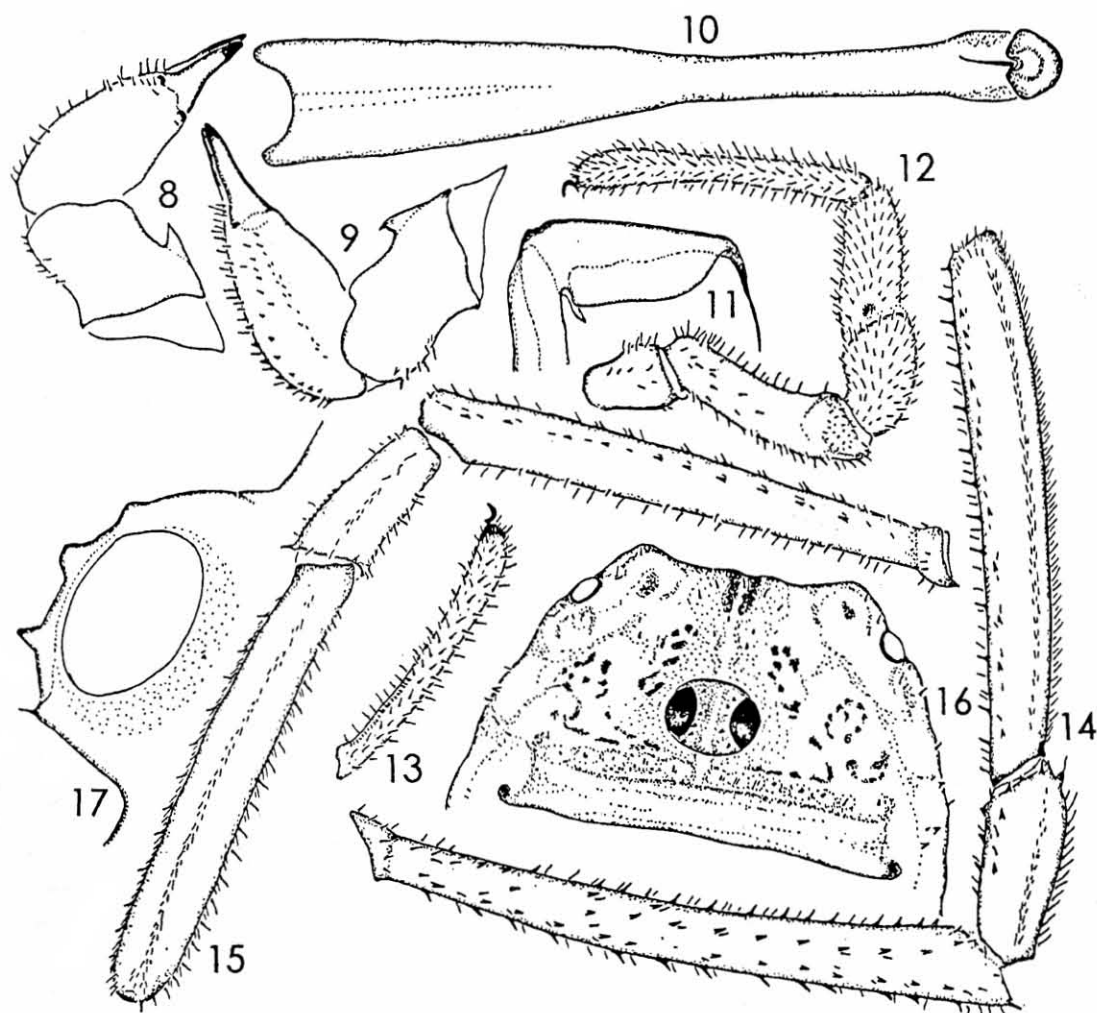
Map 1. Localities of *Opilio parietinus* (DeGeer, 1778) (circles) and *Nemastoma lugubre* (O.F. Müller, 1776) (triangles) in the Ural region.

Карта 1. Локалитеты *Opilio parietinus* (DeGeer, 1778) (круги) и *Nemastoma lugubre* (O.F. Müller, 1776) (треугольники) в уральском регионе.



Map 2. Localities of *Mitopus morio* (Fabricius, 1779) (circles) and *Egaenus* sp. (triangles) in the Ural region.

Карта 2. Локалитеты *Mitopus morio* (Fabricius, 1779) (круги) и *Egaenus* sp. (треугольники) в уральском регионе.



Figs 8–17. *Mitopus morio* (Fabricius, 1779): 8 — female chelicera; 9 — male chelicera; 10 — penis, dorsal view; 11 — glans, lateral view; 12 — female palp; 13 — male palp; 14 — male leg I without tarsus; 15 — female leg I without tarsus; 16 — carapace, dorsal view; 17 — ocularium.

Рис. 8–17. *Mitopus morio* (Fabricius, 1779): 8 — хелицера самки; 9 — хелицера самца; 10 — пенис, дорсально; 11 — головка пениса, латерально; 12 — пальпа самки; 13 — пальпа самца; 14 — нога I самца без лапки; 15 — нога I самки без лапки; 16 — карапакс, дорсально; 17 — глазной бугор.

Tr 0.30 (0.15–0.35). Ovipositor not sclerotized, with unclear borders of furcal joint and apical sensilla, as shown in Fig. 89.

LITERATURE DATA. Middle Urals: Perm Area [Esyunin, 1991], Ekaterinburg (= Sverdlovsk) Area [Esyunin et al., 1996; Ukhova, Esyunin, 1996].

DISTRIBUTION. N-, M- and E-Europe; Lithuania, Byelorussia, Moldavia, Ukraine; Russia: Kaliningrad, Leningrad, Moscow and Samara areas, Ciscaucasia.

Superfamily Phalangioidea

Family Phalangidae

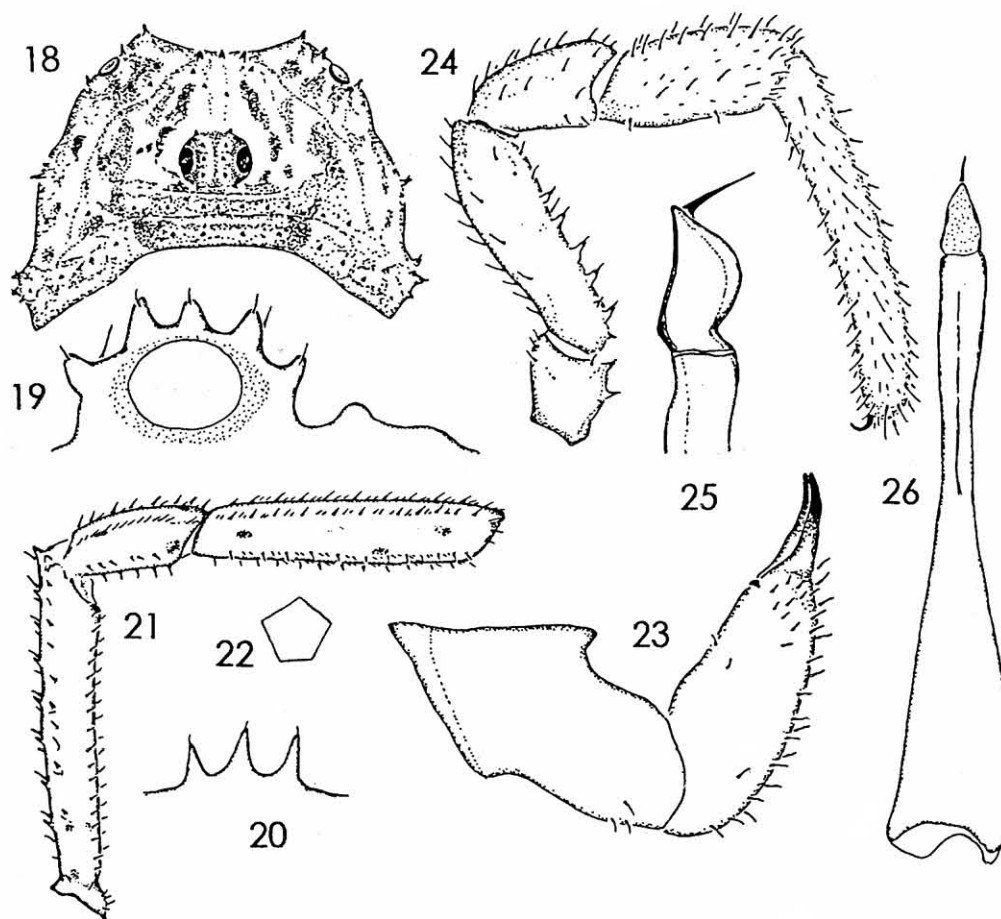
Subfamily Oligolophinae

Mitopus morio (Fabricius, 1779)

Figs 8–17, 87; Map 2.

MATERIAL. Cispolar Urals: 3 ♂♂, 3 ♀♀, Tyumen Area, Berezovo District, Neroika Mountain, *Larix-Betula* forest, VII.1988,

Yu.I. Korobeinikov. North Urals: 9 ♀♀, 15 juveniles, Perm Area, Krasnovishersk District, Kvar Kush Mt. Range, *Picea* and *Betula* forests, *Betula* elfin woodland, *Picea* open woodland, pitfall trapping, VII.1996, NSM; 6 ♂♂, 6 ♀♀, Perm Area, Krasnovishersk District, Visherskii Nature Reserve, bank of river, herbage, VIII.1994, NSM; 19 ♂♂, 11 ♀♀, Ekaterinburg (= Sverdlovsk) Area, Severouralsk District, Denezhkin Kamen Mountain, Rubel Pass, mountain tundra, pitfall trapping, VII–VIII.1998, A.I. Ermakov. Middle Urals: 3 ♂♂, 2 ♀♀, environs of Perm City, *Pinus-Picea* forest, pitfall trapping, IX.1990, VOK; 1 ♂, Perm Area, Okhansk Town, bank of Kama River, pitfall trapping, VIII.1997, N.N. Pankov; 1 ♂, Perm Area, Perm District, Zaborie, on walls, VIII.1999, A. Gristchenko & GSF; 4 ♂♂, 6 ♀♀, Perm Area, Kishert District, Preduralie Nature Reserve, *Betula* forest, pitfall trapping, VII.1987, T.I. Gridina; 2 ♂♂, Perm Area, Barda District, Chuvashaevo, on house walls, 1992, N.R. Imanaeva; 1 ♂, 1 ♀, Perm Area, Orda District, Shlyapniki, VII.1995, SLE; 14 ♂♂, 13 ♀♀, Perm Area, Gornozavodsk District, Basegi Nature Reserve, *Abies-Picea* forest, herbage, VIII.1990, SLE; 14 ♂♂, 21 ♀♀, Ekaterinburg (= Sverdlovsk) Area, Visimskii Nature Reserve, *Abies-Picea* forest, fire-site in forest, VIII–IX.1998, GSF, N.L. Ukhova & SLE. South Urals:



Figs 18–26. *Lacinius ephippiatus* (C.L. Koch, 1835): 18 — carapace, dorsal view; 19 — ocularium; 20 — denticles on anterior brink of carapace; 21 — leg I without tarsus; 22 — diametral cut of tibia of leg I; 23 — chelicera; 24 — palp, lateral view; 25 — glans, lateral view; 26 — penis, dorsal view.

Рис. 18–26. *Lacinius ephippiatus* (C.L. Koch, 1835): 18 — карапакс, дорсально; 19 — глазной бугор; 20 — зубцы на переднем крае карапакса; 21 — нога I без лапки; 22 — поперечное сечение голени ноги I; 23 — хелицера; 24 — пальпа, латерально; 25 — головка пениса, латерально; 26 — пенис, дорсально.

8♂♂, 3♀♀, Chelyabinsk Area, Iremel Mountain, herbage, VIII.1985, V.N. Olshvang; 1♂, 7♀♀, Bashkiria, Bashkirskii Nature Reserve, dry meadow, pitfall trapping, VII.1988, VEE.

DESCRIPTION. For somatic characteristics see Martens [1978]. Measurements. **MALE.** Carapace (Fig. 16) width 2.47 (2.10–2.90); «clypeus» 0.66 (0.60–0.75). Length of leg I (14): Fm 3.21 (2.30–4.35); Pt 1.01 (0.80–1.25); Tb 2.69 (2.00–3.70). Length of palp (Fig. 13): Fm 1.20 (1.10–1.35); Pt 0.59 (0.55–0.60); Tb 0.79 (0.65–0.95); Tr 1.58 (1.35–1.85). Penis as in Figs 10 & 11.

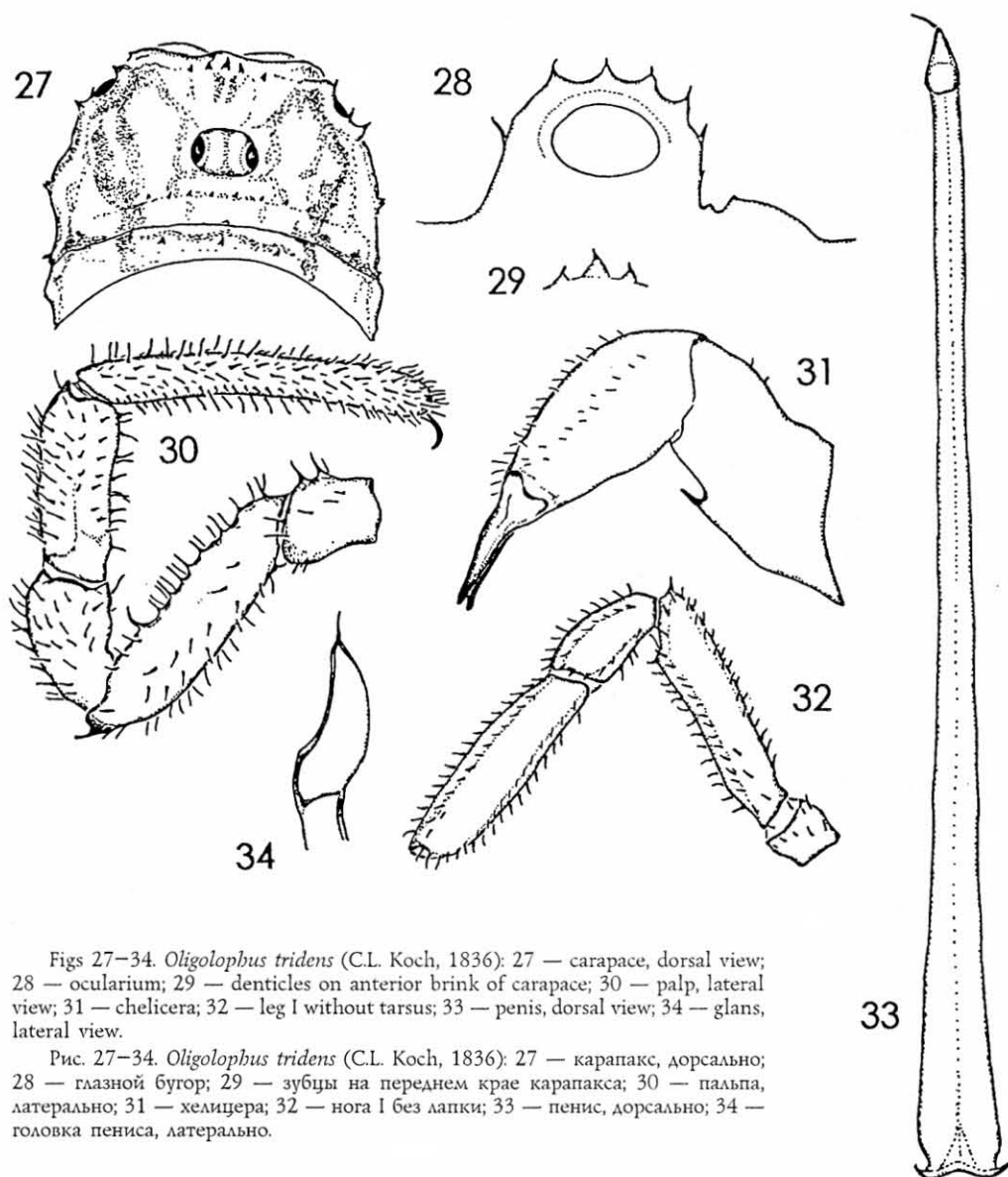
FEMALE. Carapace width 3.02 (2.70–3.35); «clypeus» 0.71 (0.60–0.85). Length of leg I (Fig. 15): Fm 2.96 (2.00–3.65); Pt 1.06 (0.80–1.25); Tb 2.47 (1.60–3.10). Length of palp (Fig. 12): Fm 1.27 (0.95–1.45); Pt 0.64 (0.55–0.70); Tb 0.82 (0.70–0.95); Tr 1.71 (1.40–1.95). Ovipositor normal or strongly sclerotized, as shown in Fig. 87. Third segment of furca twice narrower than first and second; anterior upper borders between second and third joints drawn backward; base of second segment of furca reaching the base of furca. Third segment with ten, second segment with 7–8 setae per joint. Row of sensilla on first joint with eight, basal row with 5–6 setae. Setae on segments 1 and 2 of furca longer than those on following segments.

LITERATURE DATA. Southern Yamal [Esyunin & Korobeinikov, 1988]. North Urals: between Tschugor River, Europe and Lyapin, West Siberia [Simon, 1891; Starega, 1978]. Middle Urals: Perm Area [Esyunin, 1991; Esyunin, Batalin, 1995; Gridina, 1997], Ekaterinburg (= Sverdlovsk) Area [Esyunin et al., 1996; Ukhova & Esyunin, 1996].

DISTRIBUTION. A Holarctic polyzonal species. Europe, Iceland; Estonia, Byelorussia, Ukraine, Georgia; Russia: Karelia, Kaliningrad, Leningrad, Murmansk, Moscow, Tomsk, Kemerovo, Novosibirsk, Chita, Irkutsk and Magadan areas; Caucasus: Stavropol and Krasnodar provinces; Krasnoyarsk and Khabarovsk provinces, Altai, Transbaikalia, Khakassia, Buryatia, Yakutia, Kamchatka, Sakhalin; E-Kazakhstan, Mongolia, N-China, Tibet, Himalaya, Korea, Japan, N-America, Greenland.

Lacinius ephippiatus (C.L. Koch, 1835)
Figs 18–26, 95; Map 3.

MATERIAL. North Urals: 5♂♂, 10♀♀, Perm Area, Kochevo District, Sepol, *Pinus-Picea* and *Betula* forests, pitfall trapping,



Figs 27–34. *Oligolophus tridens* (C.L. Koch, 1836): 27 — carapace, dorsal view; 28 — ocularium; 29 — denticles on anterior brink of carapace; 30 — palp, lateral view; 31 — chelicera; 32 — leg I without tarsus; 33 — penis, dorsal view; 34 — glans, lateral view.

Рис. 27–34. *Oligolophus tridens* (C.L. Koch, 1836): 27 — карапакс, дорсально; 28 — глазной бугор; 29 — зубцы на переднем крае карапакса; 30 — пальпа, латерально; 31 — хелицера; 32 — нога I без лапки; 33 — пенис, дорсально; 34 — головка пениса, латерально.

VIII.1999, VEE; 6 ♂♂, 12 ♀♀, Perm Area, Krasnovishersk District, Visherskii Nature Reserve, *Picea* and *Betula* forests, meadow on clearing, pitfall trapping, litter, VII–VIII.1994, 1995, NSM; 12 ♀♀, Perm Area, Krasnovishersk District, Kvarukush Mt. Range, *Picea* forest, *Picea* open woodland, *Betula* elfin woodland, multiherbaceous meadow, mountain tundra with *Juniperus*, pitfall trapping, VIII.1996, NSM. Middle Urals: 1 ♂, environs of Perm City, *Picea-Tilia* forest, pitfall trapping, X.1988, VOK; 7 ♂♂, 10 ♀♀, Perm Area, Kishert District, Preduralie Nature Reserve, *Betula* forest, pitfall trapping, VII.1987, T.I. Gridina; 14 ♂♂, 11 ♀♀, Perm Area, Gornozavodsk District, Basegi Nature Reserve, *Picea* open woodland, mountain tundra with *Vaccinium myrtillus*, pitfall trapping, VII.1988, SLE; 57 ♂♂, 33 ♀♀, Ekaterinburg (= Sverdlovsk) Area, Prigorodnyi District, Visimskii Nature Reserve, *Abies-Picea* and *Betula* forests, litter, pitfall trapping, VII–VIII.1993, 1996, 1999, GSF, N.L. Ukhova, NSM & SLE. South Urals: 3 ♀♀, Bashkiria, Burzyan District, Shulgan-Tash Nature Reserve, meadow, VII.1988, VEE; 3 ♂♂, 9 ♀♀, Bashkiria, Burzyan District, Bashkirskii Nature Reserve, dry meadow, pitfall trapping, VII.1988, VEE.

DESCRIPTION. For somatic characteristics see Martens [1978]. Measurements. **MALE.** Carapace (Fig. 18) width 2.07 (1.80–2.30); «clypeus» 0.48 (0.40–0.60). Length of leg

I (Fig. 21–22): Fm 1.91 (1.40–2.70); Pt 0.73 (0.60–0.90); Tb 1.60 (1.30–2.10). Length of palp (Fig. 24): Fm 0.78 (0.70–0.90); Pt 0.41 (0.35–0.50); Tb 0.53 (0.50–0.60); Tr 1.04 (0.90–1.20). Penis as in Figs 25 & 26.

FEMALE. Carapace width 2.40 (2.10–2.75); «clypeus» 0.54 (0.45–0.65). Length of leg I: Fm 1.54 (1.10–2.15); Pt 0.69 (0.60–0.75); Tb 1.43 (1.0–1.80). Length of palp: Fm 0.83 (0.65–0.90); Pt 0.41 (0.35–0.45); Tb 0.53 (0.50–0.55); Tr 1.14 (1.00–1.45). Ovipositor weakly sclerotized, as in Fig. 95. Slit not reaching the middle of third segment. Third segment with eight, second segment with 5–6 setae per joint. Row of sensilla on first joint with eight, basal row with five setae. All setae on ovipositor of same length.

DISTRIBUTION. New to the Urals. A European nemoral species. N-, M- and E-Europe; Estonia, Latvia, Byelorussia, Ukraine; Russia: Kaliningrad and Tula areas.

Oligolophus tridens (C.L. Koch, 1836)

Figs 27–34, 96; Map 4.

MATERIAL. North Urals: 1 ♂, 14 ♀♀, Perm Area, Kochevo

District, Sepol, *Pinus-Picea* and *Betula* forests, bottomland meadow, pitfall trapping, VIII.1999, VEE. Middle Urals: 3 ♀♀, Perm City, on walls of a house, VIII.1999, A. Gristchenko, GSF; 13 ♂♂, 14 ♀♀, environs of Perm City, *Picea-Tilia* forest, meadow with *Calamagrostis* and other grasses, pitfall trapping, X.1987, 1988, SLE; 1 ♂, Perm Area, Perm District, Kachka, meadow, herbage, IX.1987, SLE; 2 ♀♀, Perm Area, Okhansk Town, bottomland of Ashap River, VIII.1997, N.N. Pankov; 3 ♂♂, Perm Area, Kishert District, Preduralie Nature Reserve, *Tilia* forest, pitfall trapping, IX.1988, T.I. Gridina; 20 ♂♂, 22 ♀♀, Perm Area, Kungur District, «Spasskaya Gora» Protected Landscape, *Tilia-Betula* forest, pitfall trapping, IX–XI.1987, SLE; 14 ♂♂, Perm Area, Barda District, Chuvashaev, alder thicket, IX.1992, N. Imanaeva; 1 ♀, Perm Area, Orda District, Shlyapniki, lime-pit, VII.1995, SLE; 11 ♂♂, 8 ♀♀, Perm Area, Gornozavodsk District, Basegi Nature Reserve, mountain tundra with *Vaccinium myrtillus*, pitfall trapping, IX.1990, SLE; 8 ♂♂, 49 ♀♀, Ekaterinburg (= Sverdlovsk) Area, Prigorodnyi District, Visimskii Nature Reserve, *Abies-Picea* forest, pitfall trapping, VII–VIII.1993, 1999, SLE & GSF. South Urals: 2 juveniles, Bashkiria, Burzyan District, Bashkirskii Nature Reserve, dry meadow, pitfall trapping, VII.1988, VEE.

DESCRIPTION. For somatic characteristics see Martens [1978]. Measurements. MALE. Carapace (Fig. 27) width 1.92 (1.55–2.20); «clypeus» 0.43 (0.40–0.50). Length of leg I (Fig. 32): Fm 1.49 (1.35–1.65); Pt 0.64 (0.60–0.70); Tb 1.31 (1.05–1.50). Length of palp (Fig. 30): Fm 0.78 (0.70–0.85); Pt 0.40 (0.35–0.45); Tb 0.52 (0.45–0.55); Tr 1.04 (0.90–1.15). Penis as in Figs 33–34.

FEMALE. Carapace width 2.23 (2.10–2.35); «clypeus» 0.47 (0.45–0.50). Length of leg I: Fm 1.29 (1.15–1.55); Pt 0.61 (0.60–0.65); Tb 1.21 (1.10–1.30). Length of palp: Fm 0.83 (0.80–0.85); Pt 0.39 (0.35–0.40); Tb 0.51 (0.50–0.55); Tr 1.10 (1.05–1.15). Ovipositor weakly sclerotized, as in Fig. 96. Slit reaching the middle of third segment. Base of third segment of furca drawn backward, slightly rounded. Third segment with seven, second segment with five setae per joint. Row of sensilla on first joint with eight, basal row with five setae. All setae on ovipositor of same length.

LITERATURE DATA. Middle Urals: Perm Area [Esyunin, 1991; Esyunin & Batalin, 1995; Gridina, 1997], Ekaterinburg (= Sverdlovsk) Area [Esyunin et al., 1996; Ukhova, Esyunin, 1996].

DISTRIBUTION. A Euro-Siberian temperate species. N-, M- and E-Europe, British Isles, Iceland; Estonia, Latvia, Lithuania, Byelorussia, Ukraine; Russia: Kaliningrad, Leningrad, Moscow, Belgorod, Tula, Samara, Kemerovo, Novosibirsk and Tomsk areas, Krasnoyarsk Province; E-Kazakhstan. Introduced in N-America [Martens, 1978].

Subfamily Phalangiinae

Phalangium opilio Linnaeus, 1758

Figs 35–46, 94; Map 5.

MATERIAL. North Urals: 2 ♀♀, Perm Area, Kochevo District, Sepol, yard, VIII.1999, VEE. Middle Urals: 25 ♂♂, 25 ♀♀, Perm City and environs, cherry (*Cerasus*) shrub, potato field, kitchen-garden, multiherbaceous meadow, yard, pitfall trapping, VII–X.1987–1995, VOK & SLE; 2 ♂♂, Perm City, in house, IX.1999, SLE; 99 ♂♂, 49 ♀♀, Perm City, on walls of a house, VIII.1999, A. Gristchenko & GSF; 6 ♂♂, 9 ♀♀, Perm Area, Perm District, Zaborie, on walls of a house, VIII–IX.1999, A. Gristchenko & GSF; 1 ♂, 1 ♀, Perm Area, Perm District, Kachka, meadow, IX.1987, SLE; 11 ♂♂, 19 ♀♀, Perm Area, Kungur District, Spasskaya Gora, *Betula* forest, various kinds of steppe, pitfall trapping, VII–X.1987–1989, VOK & SLE; 11 ♂♂, 8 ♀♀, Perm Area, Kishert District, Preduralie Nature Reserve, limestone denudation, VIII.1993, VOK; 4 ♂♂, 2 ♀♀, Perm Area, Barda

District, Chuvashaev, on walls of a house, VII.1992, N. Imanaeva; 1 ♂, environs of Ekaterinburg City, 1934, V. Kozhevnikov; South Urals: 2 ♂♂, Chelyabinsk Area, Nurgush Mt. Rage, Iremel Mountain, bank of Karagaika River, sweeping in grassy vegetation, IX.1993, VEE; 27 ♂♂, 46 ♀♀, Bashkiria, Burzyan District, Bashkirskii Nature Reserve, dry meadow, pitfall trapping, VII.1988, VEE; 14 ♂♂, 6 ♀♀, Bashkiria, Burzyan District, Shulgan-Tash Nature Reserve, steppe meadow, VII–VIII.1988, 1990, VEE; 5 ♂♂, 10 ♀♀, Chelyabinsk Area, Troitsk District, Troitskii Nature Reserve, reedy banks of lake, willow-bed (*Salix*), *Betula* wood-meadow, steppe, pitfall trapping, VII–VIII.1985, 1994, VEE & SLE.

DESCRIPTION. For somatic characteristics see Martens [1978]. Measurements. MALE. Carapace (Fig. 35) width 2.69 (2.05–3.50); «clypeus» 0.53 (0.40–0.70). Length of leg I (Fig. 40): Fm 5.48 (4.15–8.20); Pt 1.25 (0.85–1.70); Tb 4.17 (3.10–6.65). Length of palp (Fig. 38): Fm 4.07 (2.05–7.65); Pt 1.55 (0.80–2.75); Tb 2.23 (1.00–4.40); Tr 3.59 (2.10–6.25). Penis as in Figs 45 & 46.

FEMALE. Carapace (Fig. 36) width 2.85 (2.15–3.30); «clypeus» 0.58 (0.40–0.75). Length of leg I: Fm 4.07 (3.40–4.80); Pt 1.14 (0.90–1.35); Tb 3.30 (2.20–3.85). Length of palp (Fig. 39): Fm 1.65 (0.20–0.95); Pt 0.71 (0.60–0.80); Tb 0.97 (0.70–1.30); Tr 2.02 (1.50–2.40). Ovipositor from weakly to normally sclerotized. Third segment of furca short and wide, with anterior border reaching the base of furca (Fig. 94). Third segment with ten short, second segment with five long setae per joint. Row of sensilla on first joint with eight, basal row with five long setae.

LITERATURE DATA. Middle Urals: Perm Area [Esyunin, Batalin, 1995].

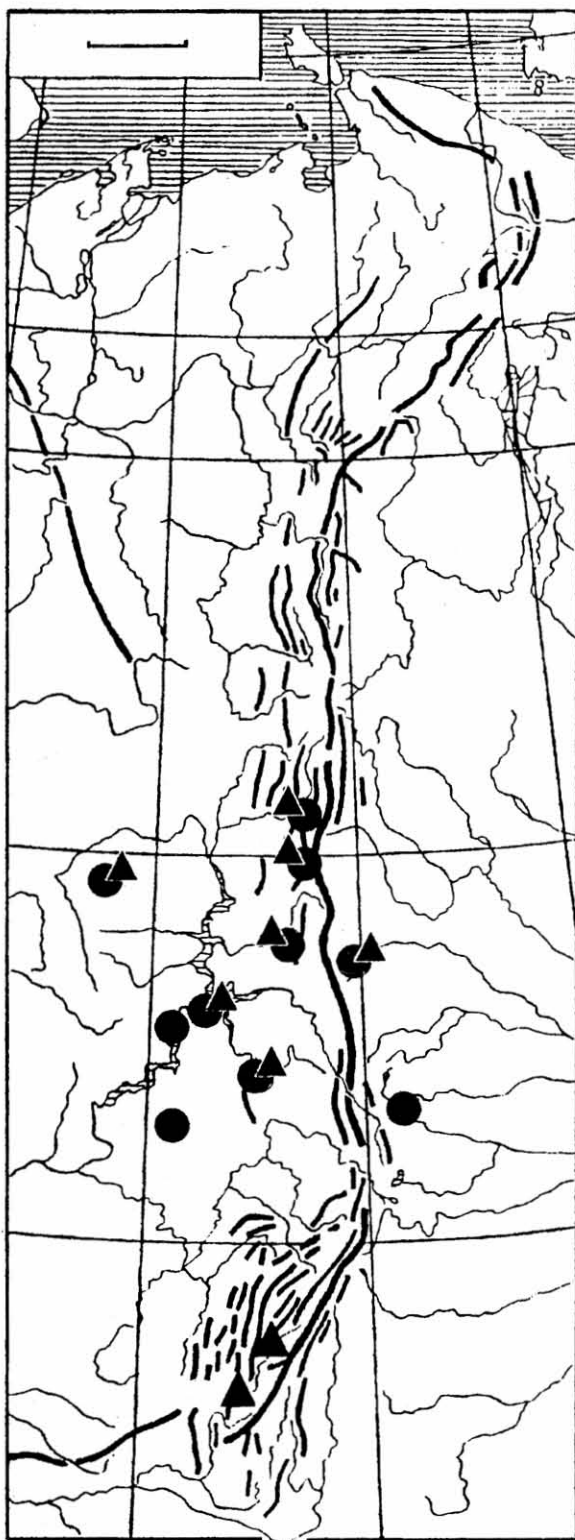
DISTRIBUTION. A Palearctic nemoral-subtropical species. Europe, British Isles, Iceland, Lebanon, Turkey; Estonia, Latvia, Ukraine, Georgia; Russia: Kaliningrad, Leningrad, Moscow, Belgorod, Samara, Tyumen, Tomsk, Kemerovo and Novosibirsk areas, Ciscaucasia, Tatarstan, Altai, Buryatia, Khakassia, Krasnodar, Stavropol, Krasnoyarsk and Primorye provinces; Kazakhstan, Mongolia, Himalaya, Tibet, Japan, Greenland. Introduced in North America and New Zealand [Martens, 1978].

Rilaena triangularis (Herbst, 1799)

Figs 47–57, 91; Map 3.

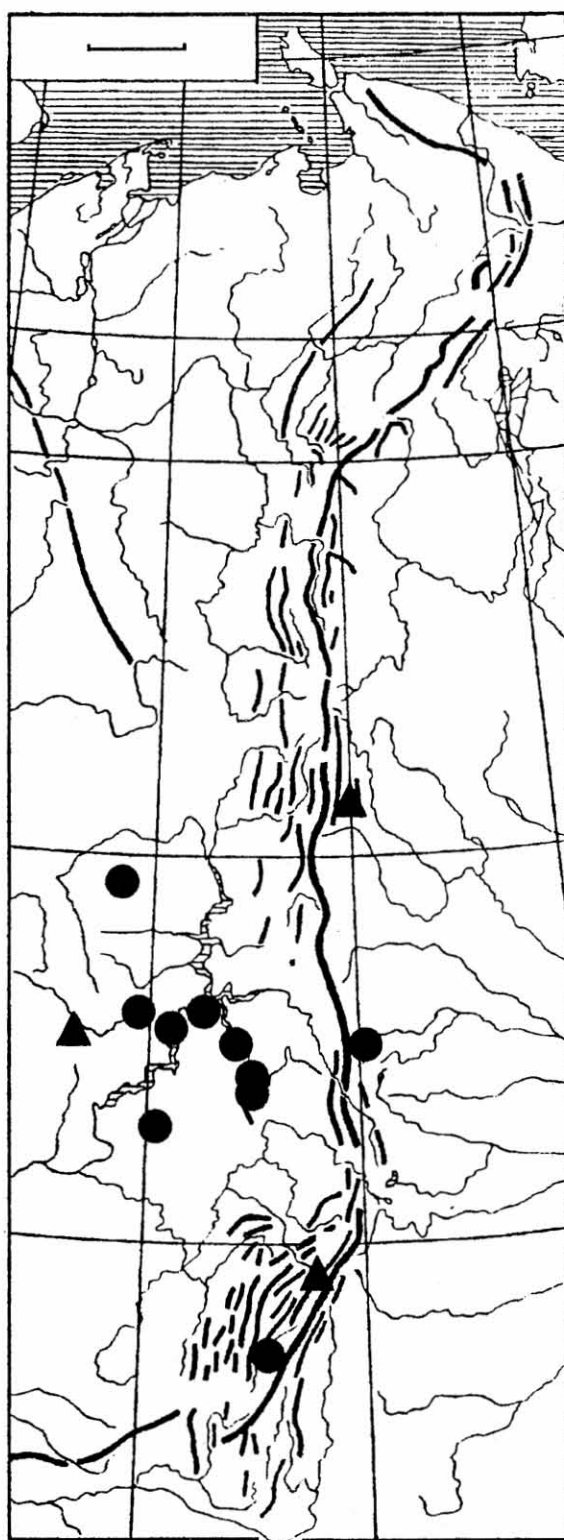
MATERIAL. North Urals: 1 ♀, Perm Area, Kochevo District, Sepol, *Pinus-Picea* forest, pitfall trapping, VIII.1999, VEE; 2 ♂♂, Perm Area, Krasnovishersk District, Visherskii Nature Reserve, *Betula* forest, VI–VIII.1994–1995, NSM; 5 ♂♂, 5 ♀♀, Perm Area, Krasnovishersk District, Kvarkush Mt. Range, *Picea* forest, *Picea* open woodland, meadow, pitfall trapping, VII.1996, NSM. Middle Urals: 8 ♀♀, Perm City, 1924–1926, D.E. Kharitonov; 2 ♀♀, Perm Area, Perm District, Kachka, *Picea* forest, pitfall trapping, VI.1988, SLE; 2 ♀♀, Perm Area, Kishert District, Preduralie Nature Reserve, *Betula* forest, sweeping on vegetation, VI.1987, T.I. Gridina; 2 ♂♂, Perm Area, Barda District, Chuvashaev, mixed forest, herbage, VII.1992, N. Imanaeva; 10 ♂♂, 6 ♀♀, Perm Area, Gornozavodsk District, Basegi Nature Reserve, *Picea* open woodland, pitfall trapping, VII.1988, SLE; 5 ♂♂, 15 ♀♀, environs of Ekaterinburg City, 1934, G. Kozhevnikov; 4 ♂♂, 5 ♀♀, Ekaterinburg (= Sverdlovsk) Area, Visimskii Nature Reserve, *Betula* forest, pitfall trapping, litter, VII–IX.1993–1996, N. Lokteeva & SLE.

DESCRIPTION. For somatic characteristics see Martens [1978]. Measurements. MALE. Carapace (Fig. 47) width 2.51 (2.35–2.80); «clypeus» 0.44 (0.40–0.50). Length of leg I (Fig. 54–55): Fm 4.56 (4.20–5.00); Pt 1.01 (0.90–1.20); Tb 2.87 (2.45–3.20). Length of palp (Fig. 52–53): Fm 1.41 (1.30–1.50); Pt 0.64 (0.55–0.70); Tb 0.89 (0.80–1.00); Tr 1.47 (1.35–1.60). Penis as in Figs 56 & 57.



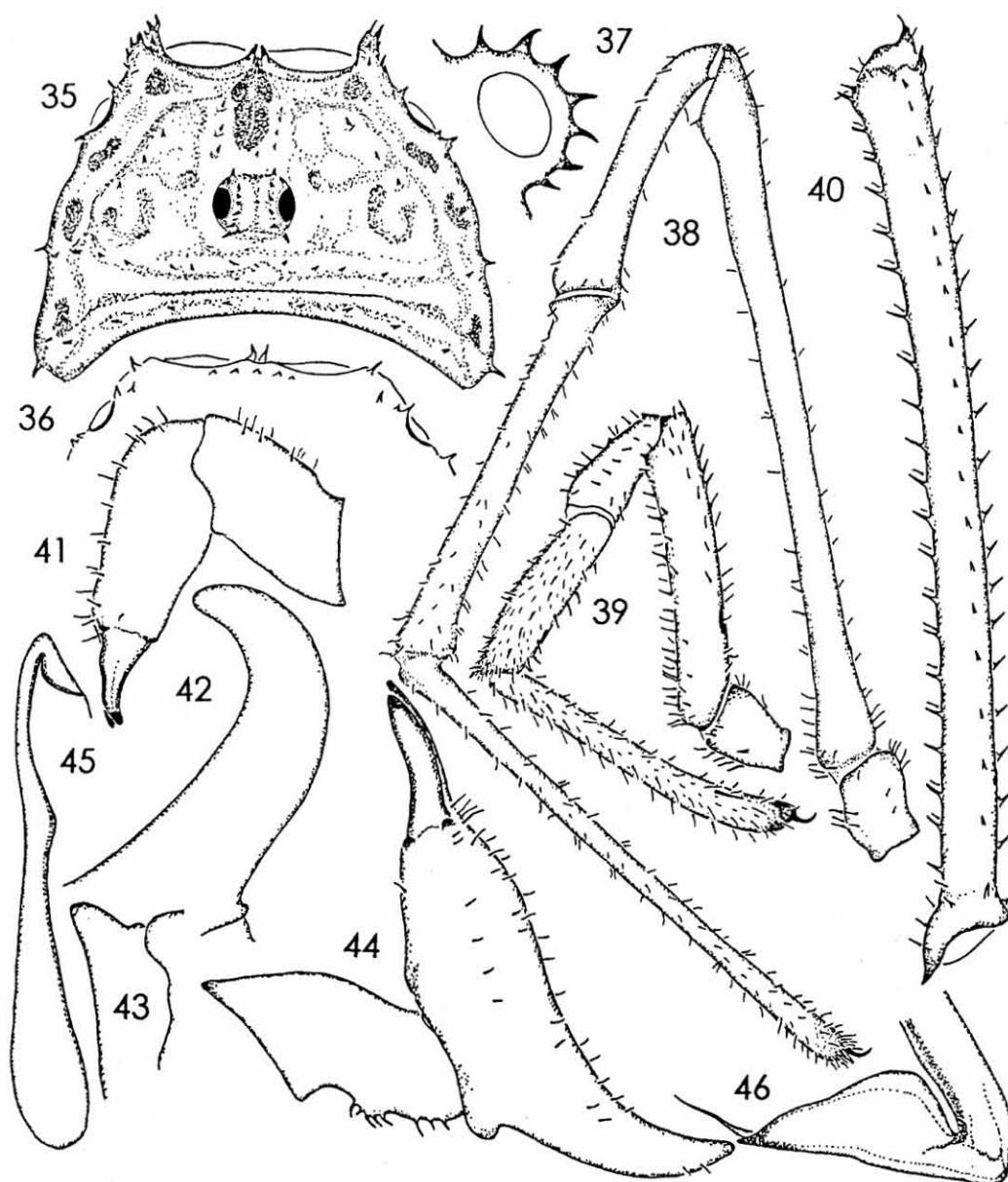
Map 3. Localities of *Rilaena triangularis* (Herbst, 1799) (circles) and *Lacinius ephippiatus* (C.L. Koch, 1835) (triangles) in the Ural region.

Карта 3. Локалитеты *Rilaena triangularis* (Herbst, 1799) (круги) и *Lacinius ephippiatus* (C.L. Koch, 1835) (треугольники) в уральском регионе.



Map 4. Localities of *Oligolophus tridens* (C.L. Koch, 1836) (circles) and *Homolophus nordenskiöldi* (L. Koch, 1879) (triangles) in the Ural region.

Карта 4. Локалитеты *Oligolophus tridens* (C.L. Koch, 1836) (круги) и *Homolophus nordenskiöldi* (L. Koch, 1879) (треугольники) в уральском регионе.



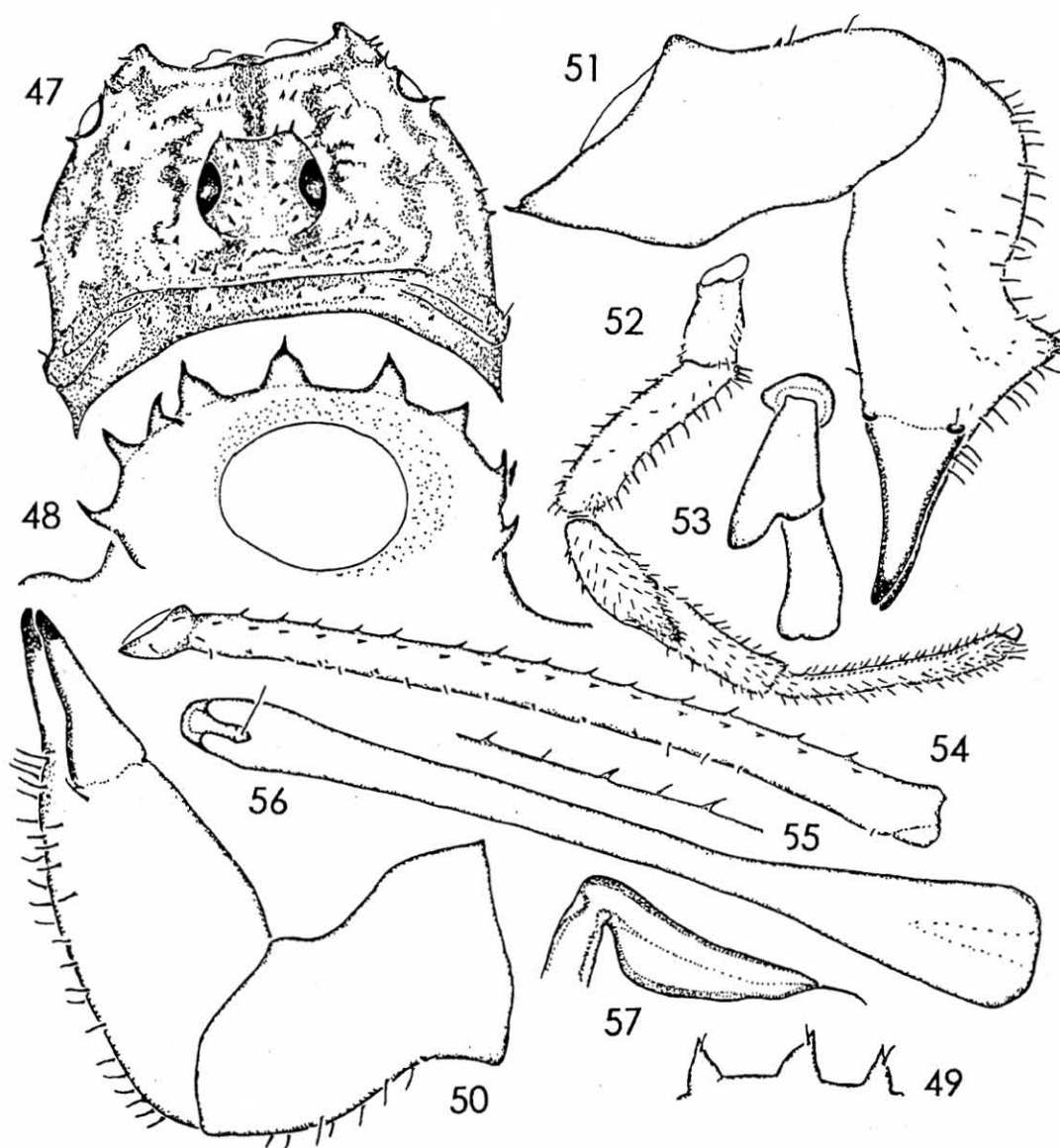
Figs 35–46. *Phalangium opilio* Linnaeus, 1758: 35 — male carapace, dorsal view; 36 — anterior brink of female carapace, dorsal view; 37 — ocularium; 38 — male palp, lateral view; 39 — female palp, lateral view; 40 — femur of leg I; 41 — female chelicera; 42–43 — variants of apical part of second segment of male chelicera; 44 — male chelicera; 45 — penis, lateral view; 46 — glans, lateral view.

Рис. 35–46. *Phalangium opilio* Linnaeus, 1758: 35 — карапакс самца, дорсально; 36 — передний край карапакса самки, дорсально; 37 — глазной бугор; 38 — пальпа самца, латерально; 39 — пальпа самки, латерально; 40 — бедро ноги I; 41 — хелицера самки; 42–43 — варианты апикальной части второго членика хелицеры самца; 44 — хелицера самца; 45 — пенис, латерально; 46 — головка пениса, латерально.

FEMALE. Carapace width 2.87 (2.55–3.25); «clypeus» 0.49 (0.40–0.55). Length of leg I: Fm 3.68 (3.35–4.35); Pt 0.99 (0.85–1.20); Tb 2.52 (2.30–2.90). Length of palp: Fm 1.46 (1.30–1.60); Pt 0.67 (0.60–0.90); Tb 0.85 (0.70–1.00); Tr 1.57 (1.40–1.75). Ovipositor weakly sclerotized with an acuminate apical part, as shown in Fig. 91. Border between first and second joints vague, semi-circular. Third segment with 7–8, second segment with 6–7 setae per joint. Row of sensilla on first joint with 8–10, basal row with six setae.

LITERATURE DATA. Middle Urals: Perm Area [Esyunin, 1991], Ekaterinburg (= Sverdlovsk) Area [Ukhova, Esyunin, 1996].

DISTRIBUTION. A Euro-American nemoral species. N-, M- and E-Europe, British Isles; Estonia, Latvia, Byelorussia, Ukraine, Transcarpathia; Russia: Kaliningrad, Leningrad, Murmansk, Moscow and Tula areas; USA: Washington; Canada: British Columbia.



Figs 47–57. *Rilaena triangularis* (Herbst, 1799): 47 — male carapace, dorsal view; 48 — ocularium; 49 — denticles on ocularium, inner view; 50 — female chelicera; 51 — male chelicera; 52 — palp, lateral view; 53 — patella and tibia of palp, dorsal view; 54 — femur of leg I; 55 — armature of dorsal part of leg femur; 56 — penis, dorsal view; 57 — glans, lateral view.

Рис. 47–57. *Rilaena triangularis* (Herbst, 1799): 47 — карапакс самца, дорсально; 48 — глазной бугор; 49 — зубцы глазного бугра изнутри; 50 — хелицера самки; 51 — хелицера самца; 52 — пальпа, латерально; 53 — колено и голень пальпы, дорсально; 54 — бедро ноги I; 55 — вооружение дорсальной стороны бедра ноги; 56 — пенис, дорсально; 57 — головка пениса, латерально.

Lophopilio palpinalis (Herbst, 1799)

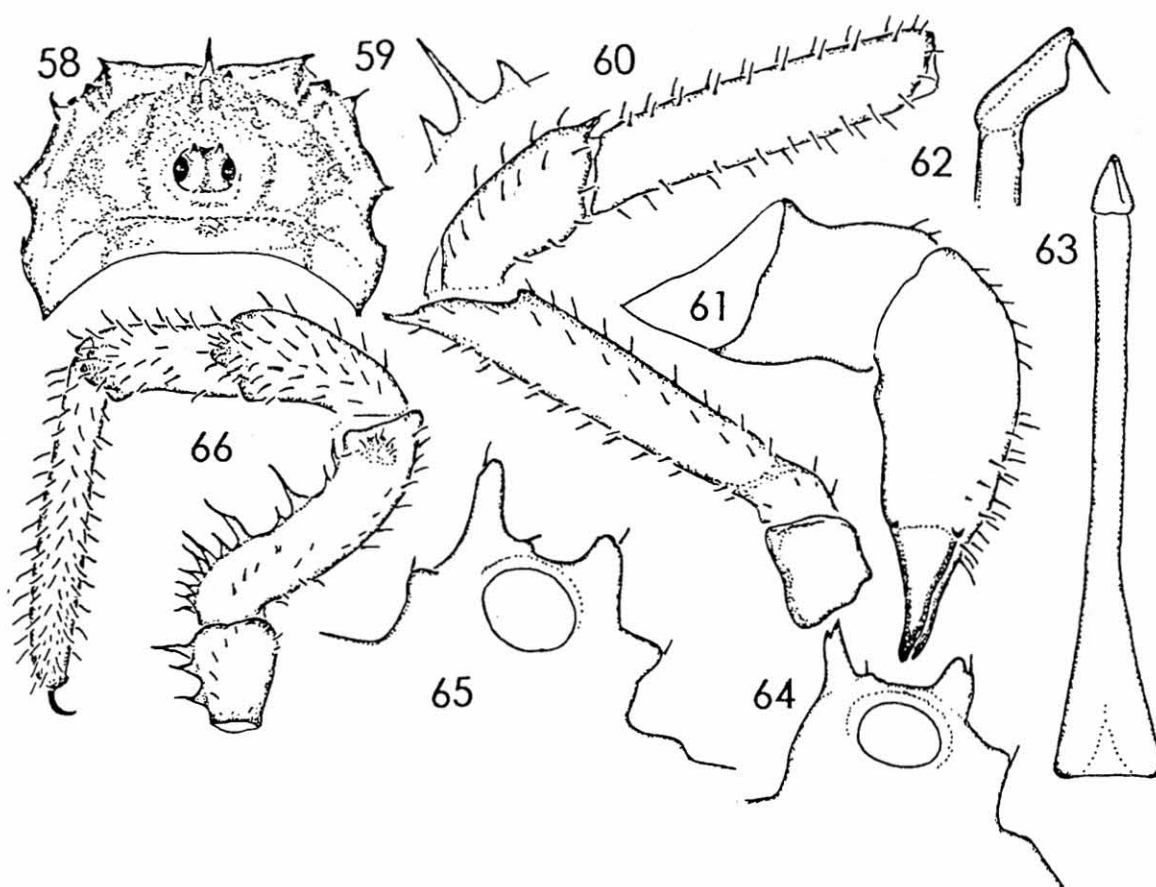
Figs 58–66, 90; Map 5.

MATERIAL. North Urals: 2 juveniles, Perm Area, Kochevo District, Sepol, *Pinus-Picea* forest, pitfall trapping, VIII.1999, VEE. Middle Urals: 7 ♂♂, 1 ♀, environs of Perm City, Verkhnyaya Kuriya, *Pinus* forest, pitfall trapping, IX.1990, VOK; 13 ♂♂, 5 ♀♀, environs of Perm City, cherry (*Cerasus*) shrub, pitfall trapping, X.1987, SLE; 11 ♂♂, 5 ♀♀, Perm Area, Kishert District, Preduralie Nature Reserve, *Tilia* and *Betula* forests, pitfall trapping, IX.1988–1989, T.I. Gridina; 26 ♂♂, 21 ♀♀, Perm Area, Kungur District, «Spasskaya Gora» Protected Landscape, *Tilia-Betula* forest, pitfall

trapping, IX–XI.1987–1988, SLE; 2 ♂♂, 1 ♀, Perm Area, Barda District, Sarashi, *Quercus* forest, litter, IX.1991, SLE.

DESCRIPTION. For somatic characteristics see Martens [1978]. Measurements. MALE. Carapace (Fig. 58–59) width 1.77 (1.60–1.95); «clypeus» 0.42 (0.35–0.45). Length of leg I (Fig. 60): Fm 1.15 (1.05–1.30); Pt 0.47 (0.40–0.55); Tb 0.97 (0.85–1.05). Length of palp (Fig. 66): Fm 0.77 (0.70–0.90); Pt 0.37 (0.35–0.40); Tb 0.46 (0.40–0.50); Tr 0.86 (0.75–0.95). Penis as in Figs 62 & 63.

FEMALE. Carapace width 2.07 (1.80–2.25); «clypeus» 0.49 (0.40–0.55). Length of leg I: Fm 1.04 (0.90–1.20); Pt 0.51 (0.40–0.60); Tb 0.91 (0.85–0.95). Length of palp: Fm



Figs. 58–66. *Lophopilio palpinalis* (Herbst, 1799): 58 — carapace, dorsal view; 59 — denticles on anterior brink of carapace; 60 — leg I without tarsus; 61 — chelicera; 62 — glans, lateral view; 63 — penis, dorsal view; 64 — male ocularium; 65 — female ocularium; 66 — palp, lateral view.

Рис. 58–66. *Lophopilio palpinalis* (Herbst, 1799): 58 — карапакс, дорсально; 59 — зубцы на переднем крае карапакса; 60 — нога I без лапки; 61 — хелицера; 62 — головка пениса, латерально; 63 — пенис, дорсально; 64 — глазной бугор самца; 65 — глазной бугор самки; 66 — пальпа, латерально.

0.79 (0.75–0.85); Pt 0.41 (0.35–0.45); Tb 0.49 (0.45–0.55); Tr 0.92 (0.85–1.10). Ovipositor weakly sclerotized. First and second segments of same size, differ from third as shown in Fig. 90. Third segment trapezoid, broadening basad, with 5–6 setae on side. Second segment with 4–5 setae per joint. Row of sensilla on first joint with six, basal row with five setae.

DISTRIBUTION. New to the Urals. A European nemoral species. N-, M- and E-Europe, British Island; Latvia, Lithuania, Byelorussia, Ukraine; Russia: Kaliningrad, Leningrad and Moscow areas, Karelia.

Homolophus nordenskiöldi (L. Koch, 1879)

Figs 67–73, 88; Map 4.

MATERIAL. North Urals: 4 ♀♀, Ekaterinburg (= Sverdlovsk) Area, Denezhkin Kamen Mt. Range, mountain tundra, pitfall trapping, VII–VIII.1998, A.I. Ermakov. Middle Urals: 13 ♂♂, Perm Area, Ocher Town, kitchen-garden, VII–VIII.1995–1996, V.G. Novokshonov. South Urals: 2 ♀♀, Chelyabinsk Area, Nurgush Mt. Range, Iremel Mountain, talus (Siberian name: «kurumy»), IX.1997, VEE.

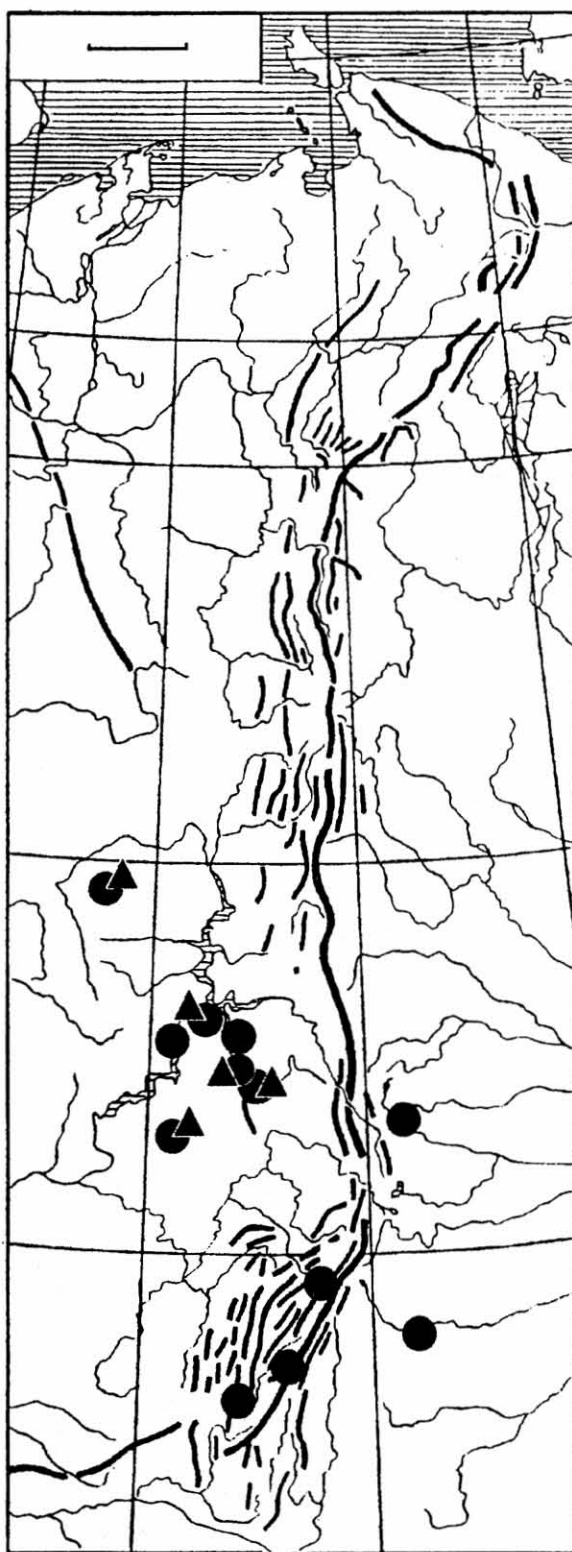
DESCRIPTION. For somatic characteristics see Tchemeris et al. [1999]. Measurements. **MALE.** Carapace (Fig. 67)

width 3.90 (3.50–4.25); «clypeus» 1.14 (1.00–1.35). Length of leg I (Fig. 71): Fm 4.91 (4.05–5.25); Pt 1.64 (1.50–1.80); Tb 4.05 (3.45–4.30). Length of palp (Fig. 73): Fm 1.59 (1.45–1.70); Pt 0.81 (0.75–0.85); Tb 1.14 (1.05–1.25); Tr 1.74 (1.65–1.80). Penis as in Figs 69 & 70.

FEMALE. Carapace width 3.04 (2.80–3.25); «clypeus» 0.87 (0.80–0.95). Length of leg I: Fm 2.70 (2.60–2.80); Pt 1.03 (0.95–1.15); Tb 2.39 (2.15–2.55). Length of palp: Fm 1.07 (1.00–1.20); Pt 0.48 (0.40–0.55); Tb 0.78 (0.70–0.90); Tr 1.43 (1.35–1.50). Ovipositor strongly sclerotized, as shown in Fig. 88. All segments of furca subequal in size. Third segment with 16, second segment with 9–11 setae per joint. Row of sensilla on first joint with 7–8, basal row with four setae. Setae on furcal segments 1 and 2 longer than those on following segments.

LITERATURE DATA. North Transuralia: between Bere-zovo and Khanty-Mansiisk [Simon, 1891; Staręga, 1978]. South Urals [Chevrizov, 1979].

DISTRIBUTION. A Lapland-Central Asian temperate species. N-Europe: Finland; Russia: Kola Peninsula and Murmansk, Novosibirsk, Tomsk, Chita and Irkutsk areas, Buryatia, Altai, Tuva, Khakassia, Baikal region, Krasnoyarsk Province; E-Kazakhstan, Mongolia, Karakorum, N-Korea.



Map 5. Localities of *Phalangium opilio* Linnaeus, 1758 (circles) and *Lophopilio palpinalis* (Herbst, 1799) (triangles) in the Ural region.

Карта 5. Локалитеты *Phalangium opilio* Linnaeus, 1758 (круги) и *Lophopilio palpinalis* (Herbst, 1799) (треугольники) в уральском регионе.

?Egaenus sp.

Figs 74–78, 93; Map 2.

MATERIAL. South Urals: 1 ♀, Bashkiria, Burzyan District, Shulgan-Tash Nature Reserve, rock, 22.VIII.1997, SLE & VEE.

DESCRIPTION. **FEMALE.** Ground color yellow-brown. Carapace with numerous denticles (Fig. 74). A low eye tubercle armed with setae frontally and with small denticles in basal part (Fig. 75). Thoracic tergites unarmed (Fig. 74). Abdominal tergites each with a row of minute setae. Palp and chelicera without modifications (Figs 77 & 78). Leg segments cylindrical, with thin and short setae arranged in longitudinal rows; femora with dorsal rows of denticles in 2/3 basal part (Fig. 76); tibiae ventrolaterally with more or less wide bands of the setae. Measurements. Carapace width 2.60; «clypeus» 0.85. Length of leg I (Fig. 76): Fm 2.50; Pt 1.05; Tb 0.75. Length of palp (Fig. 77): Fm 1.00; Pt 0.50; Tb 0.75; Tr 1.40. Ovipositor normally sclerotized; first and second segments of same size, differ from third as shown in Fig. 93. Third segment with 11–12, second one with 5–6 setae per joint. Row of sensilla on first joint with seven, basal row with five setae. Setae on furcal segments 1 and 2 longer than those on following segments.

REMARKS. The identity of the species remains unclear, first of all due to the absence of male material. The single female at hand resembles *Egaenus* C.L. Koch, 1839 due to the low eye tubercle, and *Homolophus* Banks, 1893 by its armor of the carapace, being distinguishable from the former by denticles on the eye tubercle, from the latter by cylindrical segments of the legs.

More material is necessary to properly allocate this species.

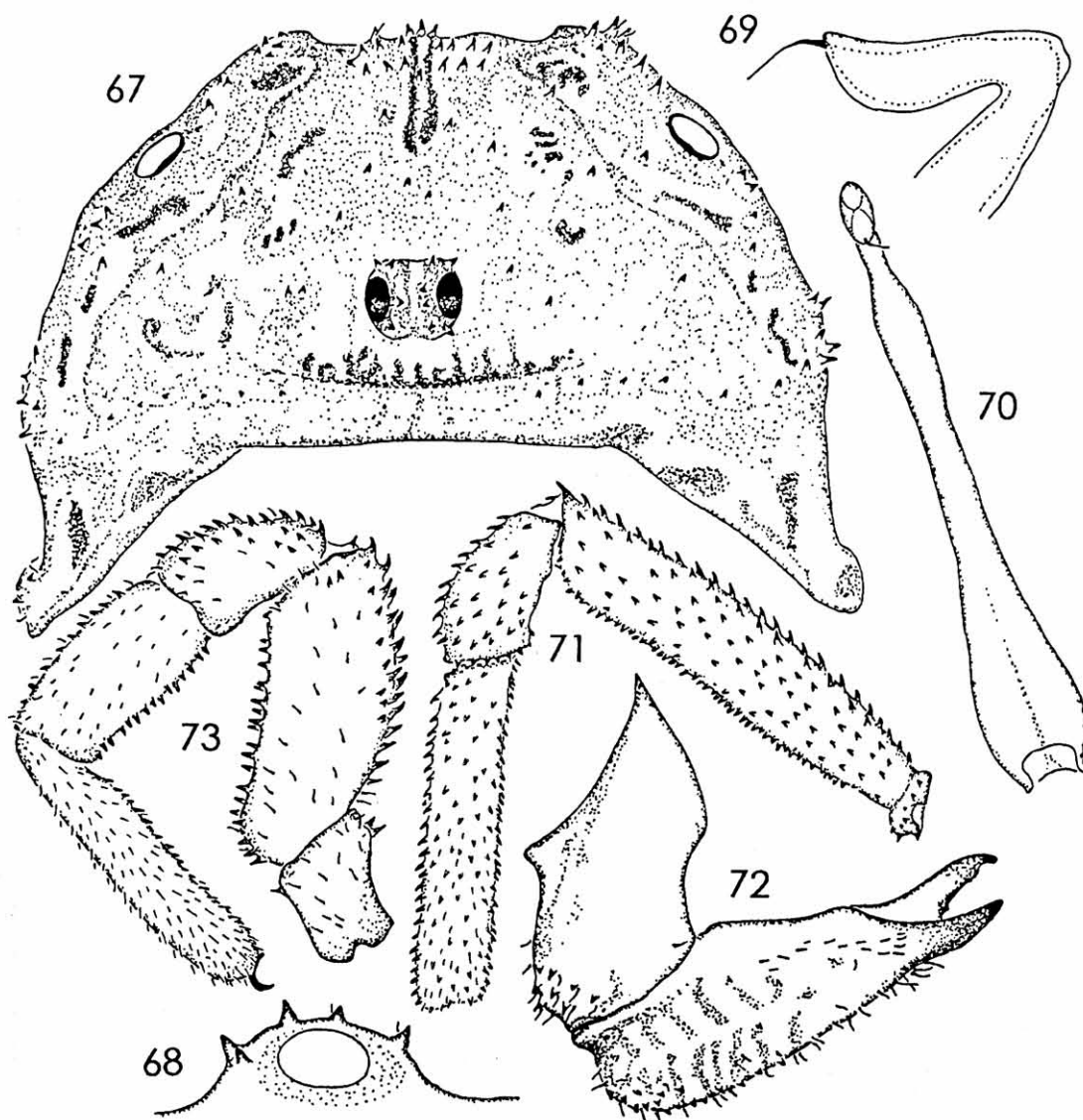
Opilio parietinus (DeGeer, 1778)

Figs 79–86, 92; Map 1.

MATERIAL. North Urals: 1 ♀, Perm Area, Krasnovishersk District, Visherskii Nature Reserve, bank of Vishera River, herbage, VIII.1994, NSM. Middle Urals: 13 ♂♂, 9 ♀♀, Perm City, yard, in house, on walls of a house, VII–IX.1995, 1999, VOK, A. Gristchenko, GSF & SLE; 5 ♂♂, 1 ♀, environs of Perm City, kitchen-garden, pitfall trapping, IX–X.1988, SLE; 6 ♂♂, 7 ♀♀, Perm Area, Perm District, Zaborie, kitchen-garden, on fences and walls, VII–IX.1999, A. Gristchenko & GSF; 2 ♂♂, 3 ♀♀, Perm Area, Kungur District, «Spasskaya Gora» Protected Landscape, *Betula* forest, limestone denudation, pitfall trapping, VII–IX.1987, 1989, 1993, VOK & SLE; 1 ♂, Perm Area, Barda District, Chuvashaevo, on walls of a house, VI.1992, N. Imanaeva; South Urals: 3 ♂♂, 1 ♀, Bashkiria, Burzyan District, Shulgan-Tash Nature Reserve, rock, VIII.1997, SLE & VEE; 8 ♂♂, 20 ♀♀, 14 juveniles, Chelyabinsk Area, Troitsk District, Troitskii Nature Reserve, 1948, D.E. Kharitonov; 4 ♂♂, 5 ♀♀, some locality, in houses, VIII.1994, SLE.

DESCRIPTION. For somatic characteristics see Martens [1978]. Measurements. **MALE.** Carapace (Fig. 79) width 3.09 (2.60–3.60); «clypeus» 0.57 (0.45–0.70). Length of leg I (Fig. 80): Fm 6.19 (4.75–7.55); Pt 1.45 (1.05–1.85); Tb 4.88 (3.95–5.85). Length of palp (Fig. 84): Fm 1.34 (1.00–1.80); Pt 0.58 (0.40–0.70); Tb 0.85 (0.65–1.10); Tr 1.73 (1.50–2.10). Penis as in Figs 81 & 82.

FEMALE. Carapace width 2.91 (2.60–3.40); «clypeus» 0.53 (0.40–0.60). Length of leg I: Fm 4.96 (4.45–6.10); Pt 1.27 (1.00–1.60); Tb 4.00 (3.60–4.90). Length of palp: Fm 1.16 (1.00–1.30); Pt 0.51 (0.40–0.60); Tb 0.76 (0.70–0.80); Tr 1.62 (1.50–1.80). Ovipositor normally sclerotized; second and third segments of same length, differ from first one as shown in Fig. 92. Third segment with 9–10, second one with



Figs. 67–73. *Homolophus nordenskiöldi* (L. Koch, 1879): 67 — carapace, dorsal view; 68 — ocularium; 69 — glans, lateral view; 70 — penis, dorsal view; 71 — leg I without tarsus; 72 — chelicera; 73 — palp, lateral view.

Рис. 67–73. *Homolophus nordenskiöldi* (L. Koch, 1879): 67 — карапакс, дорсально; 68 — глазной бугор; 69 — головка пениса, латерально; 70 — пенис, дорсально; 71 — нога I без лапки; 72 — хелицера; 73 — пальпа, латерально.

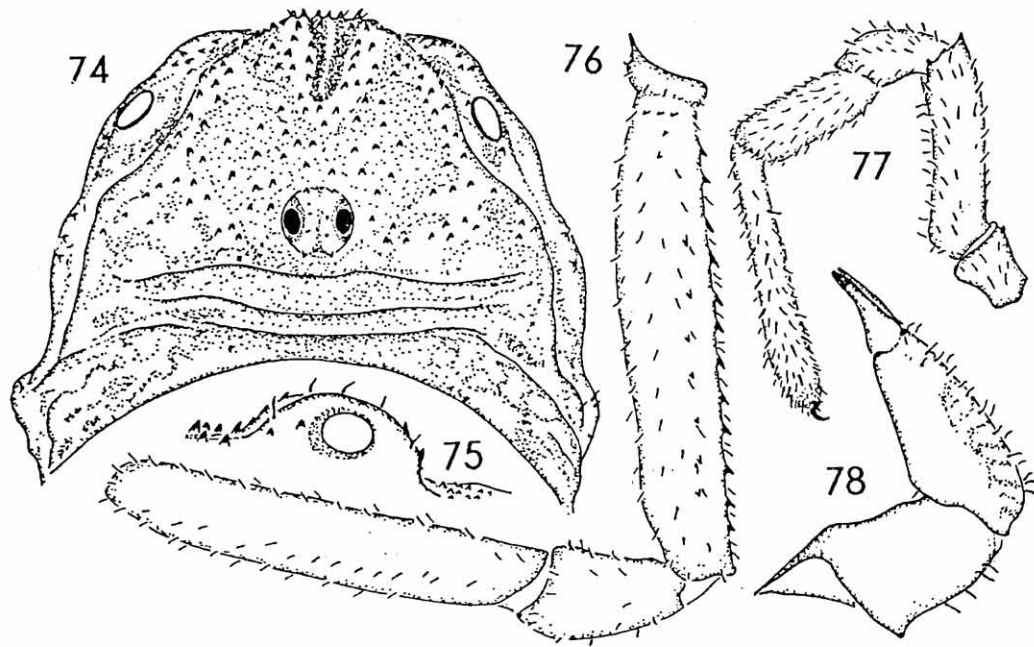
9–10 setae. Row of sensilla on first joint with eight, basal row with five setae. Setae on furcal segments 1 and 2 longer than those on following segments.

DISTRIBUTION. New to the Urals. A Holarctic nemoral-subtropical species. Europe, Georgia, Turkey, Iran; Estonia, Latvia, Ukraine; Russia: Kaliningrad, Leningrad, Moscow, Belgorod, Tomsk and Novosibirsk areas, Stavropol Province; Kazakhstan, N-America, Tasmania. Considered by Martens [1978] as a primarily Mediterranean species.

ОПРЕДЕЛИТЕЛЬНЫЙ КЛЮЧ УРАЛЬСКИХ ВИДОВ СЕНОКОСЦЕВ

1. Тело черное или темно-коричневое 3
2. Основной цвет тела серый или бурый 5

3. Карапакс с двумя желтыми пятнами по бокам (рис. 7).
Мелкий, до 3 мм. Тело покрыто плотной, сильно склеротизованной кутикулой. Карапакс и глазной бугор сверху несут небольшие различной формы бугорки (рис. 7; смотреть сбоку). Голень пальпы в два раза длиннее последнего членика пальпы (рис. 4). Последний членик пальпы без коготка. Бедро хелицеры самца модифицировано; с апикальным выростом, несущим щетинки (рис. 2) *Nemastoma lugubre*
4. Карапакс без таких пятен. Крупнее, самец 6,7, самка 9,7 мм. Глазной бугор несет 4–5 пар зубчиков (рис. 68). Последний членик пальпы с коготком (рис. 73). Бедро хелицеры самца не модифицировано (рис. 72)
..... *Homolophus nordenskiöldi*



Figs. 74–78. ?*Egaenus* sp. female: 74 — carapace, dorsal view; 75 — ocularium; 76 — leg I without tarsus; 77 — palp, lateral view; 78 — chelicera.

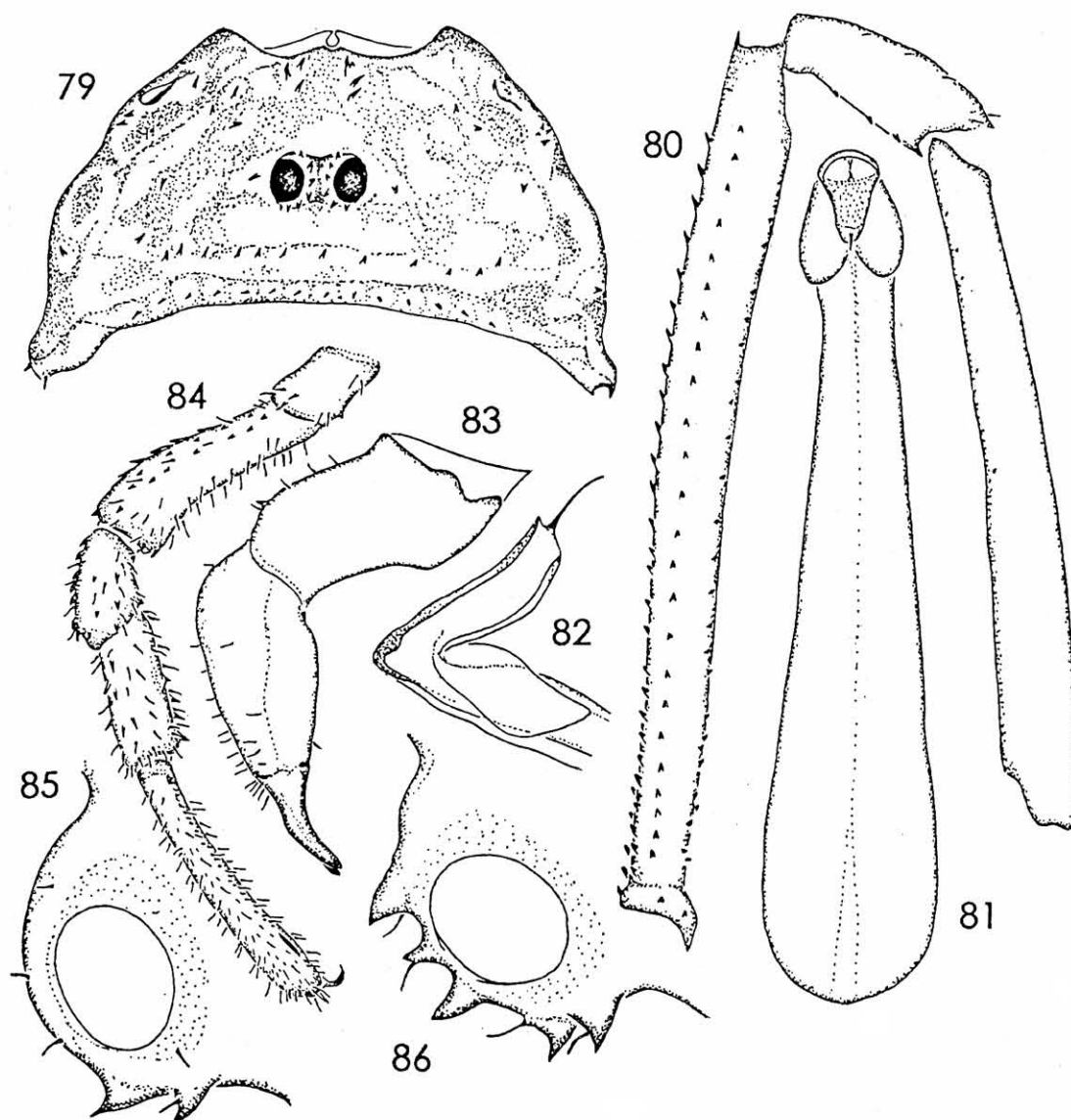
Рис. 74–78. Самка ?*Egaenus* sp.: 74 — карапакс, дорсально; 75 — глазной бугор, латерально; 76 — нога I без лапки; 77 — пальпа, латерально; 78 — хелицера.

5. Передний край карапакса с группой из трех вертикальных зубчиков (рис. 20, 29, 59) 7
6. Передний край карапакса без такой группы зубчиков 11
7. Средний из трех зубчиков, расположенных по переднему краю карапакса, в два и более раза длиннее боковых (рис. 59). Передние зубчики глазного бугра обычно в 1,5 раза больше задних (рис. 64–65). Бедро, колено и голень пальпы с апикальными, закругленными выростами (рис. 66) *Lophopilio palpalis*
8. Зубчики, расположенные по переднему краю карапакса, слабо различаются по величине 9
9. Бедро пальпы по нижнему краю с бугорками и щетинками (рис. 24). Зубец бедра хелицеры с тупой вершиной (рис. 23). Зубчики переднего края карапакса длиннее, одинаковые по величине (рис. 20) *Lacinius ephippiatus*
10. Бедро пальпы по краю только со щетинками (рис. 30). Зубец бедра хелицеры заостренный (рис. 31). Зубчики на переднем крае карапакса короче, средний примерно в 1,5 раза больше боковых (рис. 29) *Oligolophus tridens*
11. Бедро хелицеры с нижней стороны с зубцом (рис. 9). Зубчики на глазном бугре слабо выражены (рис. 17). Карапакс с небольшим количеством слабо выраженных зубчиков, чаще не вооруженный (рис. 16). Голень ноги I с тремя продольными рядами мелких, густо сидящих щетинок (рис. 14–15) *Mitopus morio*
12. Бедро хелицеры с нижней стороны без зубца 13
13. Пальпа модифицирована: бедро, колено и голень с апикальными выростами; наиболее заметен вырост на колене (рис. 52–53). Глазной бугор крупный (рис. 47), с 8–9 зубцами (рис. 48), которые с внутренней

- стороны несут по одной щетинке (рис. 49). Голень хелицеры самца модифицирована, с апикальным выростом (рис. 51) *Rilaena triangularis*
14. Членики пальпы без явственных апикальных выростов (рис. 38–39, 77, 84) 15
15. Бедро второй пары ног не отличается по толщине от бедер первой пары. Глазной бугор имеет 6–8 одинаковых зубчиков, не несущих щетинки (рис. 37). Передний край карапакса вооружен: имеются два изогнутых зубчика, направленных вперед (рис. 35–36). У самцов передний край карапакса часто с двумя боковыми выростами, вооруженными зубчиками (рис. 35). Хелицера самца модифицирована — голень с базальным выростом разной величины (от небольшого бугорка до длинного «рога»; рис. 42–44) *Phalangium opilio*
16. Бедро второй пары ног приблизительно в 2 раза тоньше бедер первой пары. Хелицеры самцов и самок не видоизмененные 17
17. Между передним краем карапакса и глазным бугром имеется группа из 6–8 зубчиков, расположенных в два ряда (рис. 79) *Opilio parietinus*
18. Многочисленные зубчики на карапаксе расположены беспорядочно (рис. 74) ?*Egaenus* sp.

KEY TO URAL OPILIONID SPECIES

1. Body black or dark brown 3
2. Ground color of body gray or brown 5
3. Carapace with a yellow spot on each side (Fig. 7). Small, up to 3 mm. Body covered by a hard, strongly sclerotized cuticle. Both carapace and eye tubercle dorsally with small knobs of varying shape (Fig. 7; to be spotted in lateral view). Tibia of palp twice longer than tarsus (Fig.



Figs. 79–86. *Opilio parietinus* (DeGeer, 1778): 79 — carapace, dorsal view; 80 — leg I without tarsus; 81 — penis, dorsal view; 82 — glans, lateral view; 83 — chelicera; 84 — palp, lateral view; 85 — female ocularium; 86 — male ocularium.

Рис. 79–86. *Opilio parietinus* (DeGeer, 1778): 79 — карапакс, дорсально; 80 — нога I без лапки; 81 — пенис, дорсально; 82 — головка пениса, латерально; 83 — хелицера; 84 — пальпа, латерально; 85 — глазной бугор самки; 86 — глазной бугор самца.

- 4). Apical segment of palp without claw. Femur of male chelicera modified, with an apical, setose apophysis (Fig. 2) *Nemastoma lugubre*
4. Carapace without yellow spots. Larger: male 6.7, female 9.7 mm. Eye tubercle with 4–5 pairs of denticles (Fig. 68). Tarsus of palp with a claw (Fig. 73). Femur of male chelicera not modified (Fig. 72) *Homolophus nordenskiöldi*
5. Anterior border of carapace with a group composed of three vertical denticles (Figs 20, 29, 59) 7
6. Anterior border of carapace without such a group of three vertical denticles 11
7. The middle of the three denticles located at anterior border of carapace, twice or more as long as either of lateral denticles (Fig. 59). Anterior denticles on eye tubercle usually 1.5 times as large as posterior ones (Figs 64 & 65). Femur, patella and tibia of palp each with an apical rounded apophysis (Fig. 66) *Lophopilio palpinalis*
8. The denticles located at anterior border of carapace poorly differentiated in size 9
9. Femur of palp with knobs and setae at ventral border (Fig. 24). Denticle on femur of chelicera with a blunt tip (Fig. 23). Denticles at anterior border of carapace longer, equal in size (Fig. 20) *Lacinius ephippiatus*
10. Femur of palp only setose at ventral border (Fig. 30). Denticle on femur of chelicera acuminate (Fig. 31). Denticles at anterior border of carapace shorter; the middle denticle ca. 1.5 times longer than lateral ones (Fig. 29) *Oligolophus tridens*
11. Femur of chelicera with a denticle at ventral border (Fig. 9). Denticles on eye tubercle poorly expressed (Fig. 17). Carapace bearing a few poorly developed denticles at

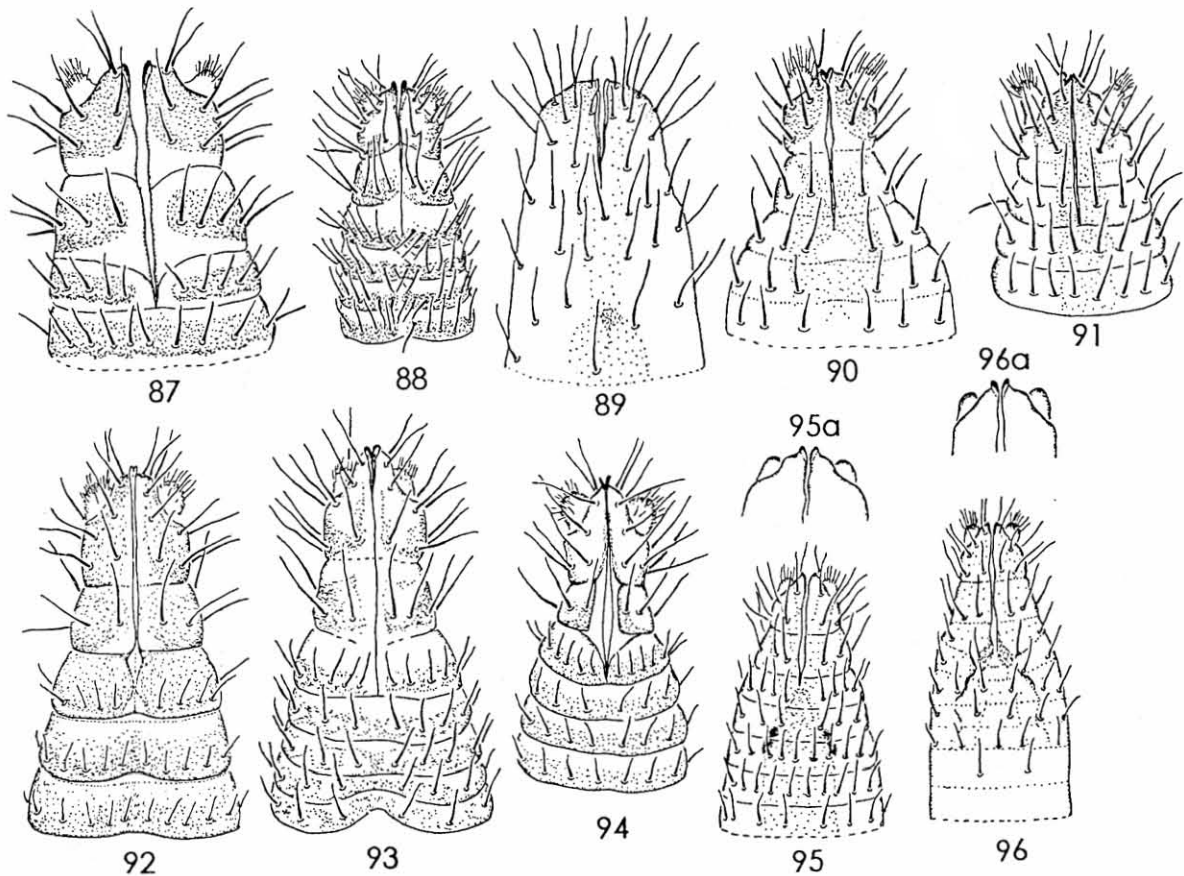


Fig. 87-96. Ovipositor of females: 87 — *Mitopus morio* (Fabricius, 1779); 88 — *Homolophus nordenskiöldi* (L. Koch, 1879); 89 — *Nemastoma lugubre* (O.F. Müller, 1776); 90 — *Lophopilio palpinalis* (Herbst, 1799); 91 — *Rilaena triangularis* (Herbst, 1799); 92 — *Opilio parietinus* (DeGeer, 1778); 93 — ?*Egaenus* sp.; 94 — *Phalangium opilio* Linnaeus, 1758; 95 — *Lacinius ephippiatus* (C.L. Koch, 1835); 96 — *Oligolophus tridens* (C.L. Koch, 1836). 95a, 96a — apical part of first furcal segment.

Рис. 87-96. Яйцеклад самок: 87 — *Mitopus morio* (Fabricius, 1779); 88 — *Homolophus nordenskiöldi* (L. Koch, 1879); 89 — *Nemastoma lugubre* (O.F. Müller, 1776); 90 — *Lophopilio palpinalis* (Herbst, 1799); 91 — *Rilaena triangularis* (Herbst, 1799); 92 — *Opilio parietinus* (DeGeer, 1778); 93 — ?*Egaenus* sp.; 94 — *Phalangium opilio* Linnaeus, 1758; 95 — *Lacinius ephippiatus* (C.L. Koch, 1835); 96 — *Oligolophus tridens* (C.L. Koch, 1836). 95a, 96a — апикальная часть первого сегмента фурки.

- most, more often unarmed (Fig. 16). Tibia I with three longitudinal rows of minute but dense setae (Figs 14 & 15) *Mitopus morio*
12. Femur of chelicera without denticle at ventral border. 13. Palp modified: femur, patella and tibia each with an apical apophysis (Figs 52 & 53); latter particularly well-expressed on patella. Eye tubercle large (Fig. 47), with 8-9 denticles (Fig. 48) each bearing a seta on inner side (Fig. 49). Tibia of male chelicera modified, with an apical apophysis (Fig. 51) *Rilaena triangularis*
14. Segments of palp without distinct apical apophyses (Figs 38, 39, 77, 84) 15
15. Femora II not differing in thickness from femora I. Eye tubercle with 6-8 equal denticles devoid of setae (Fig. 37). Anterior border of carapace armed by two curved denticles directed forward (Figs 35 & 36). Anterior border of male carapace often with two lateral apophyses armed by denticles (Fig. 35). Male chelicera modified: tibia with a basal apophysis of varying size (from a small tubercle to a long «horn»; Figs 42-44) *Phalangium opilio*
16. Femora II ca. 2 times slenderer than femora I. Male and female chelicera not modified 17

17. A group of 6-8 denticles arranged in two rows between anterior border of carapace and eye tubercle (Fig. 79) ..
..... *Opilio parietinus*
18. Numerous, randomly dispersed denticles on carapace (Fig. 74) ?*Egaenus* sp.

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