

Remarks on the Ural spider fauna, 9. New data on the Ural species of the genus *Lepthyphantes* Menge, 1866 (s.l.) (Aranei: Linyphiidae)

Заметки по фауне пауков Урала, 9. Новые данные об уральских видах рода *Lepthyphantes* Menge, 1866 (s.l.) (Aranei: Linyphiidae)

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КЛЮЧЕВЫЕ СЛОВА: фауна, *Lepthyphantes*, новые синонимы.

ABSTRACT: Two new synonyms have been established: *Lepthyphantes parvus* Tanasevitch, 1990 = "*Lepthyphantes*" *cornutus* Schenkel, 1927, and *Lepthyphantes montanouralensis* Esyunin & Efimik, 1991 = *Improphantes improbulus* (Simon, 1929) (valid names on the right). Further two species are new to the fauna of the Urals: "*L.*" *cornutus* Schenkel, 1927 and *Improphantes holmi* (Kronstedt, 1975). *Improphantes geniculatus* (Kulczyński, 1898) is redescribed based on material from the Urals. Finally, two species are ejected from the Ural spider fauna: *Lepthyphantes monticola* (Kulczyński, 1881) and *L. pseudoobscurus* Marusik, Hippa et Koponen, 1996.

РЕЗЮМЕ: Установлены два новых синонима: *Lepthyphantes parvus* Tanasevitch, 1990 = "*Lepthyphantes*" *cornutus* Schenkel, 1927 и *Lepthyphantes montanouralensis* Esyunin & Efimik, 1991 = *Improphantes improbulus* (Simon, 1929) (валидные названия справа). Два вида — "*L.*" *cornutus* Schenkel, 1927 и *Improphantes holmi* (Kronstedt, 1975) — являются новыми для фауны Урала. По уральским материалам переописан *Improphantes geniculatus* (Kulczyński, 1898). Два вида исключены из уральской фауны пауков: *Lepthyphantes monticola* (Kulczyński, 1881) и *L. pseudoobscurus* Marusik, Hippa et Koponen, 1996.

Introduction

No fewer than 31 species of the spider genus *Lepthyphantes* Menge, 1866 (s.l.) have been reported in a recently published catalogue of the Ural spiders [Esyunin & Efimik, 1996]. However, new material has since become available for restudy, with several important refinements and corrections involved.

Besides the authors' collections, the names abbreviated in the text as (SE) and (VE), respectively,

this paper is based on material taken by N.S. Mazura (NM), and SE and collaborators. This material currently belongs to the collection of the Department of Zoology of the Perm State University (PSU), the Zoological Museum of the Moscow State University (ZMMU), and the private collection of Dr. A.V. Tanasevitch (ATC). Chaetotaxy is given in the following formula: FeI: 3-2-1-0, which means that femur I with three dorsal, two pro- and one retrolateral spine, ventral spines absent (the apical spines have been discarded). All measurements are in millimeters.

The following previous misidentifications of Ural spiders should be corrected based on a restudy of pertinent material.

1. The records of *Lepthyphantes monticola* (Kulczyński, 1881) [Esyunin & Efimik, 1996] are erroneous, that from the North Urals being applied to *Flagelliphantes bergstroemi* (Schenkel, 1931), and that from the Middle Urals to *Improphantes complicatus* (Emerton, 1882).

2. All records of *Lepthyphantes pseudoobscurus* Marusik, Hippa et Koponen, 1996 from the Urals [Esyunin & Efimik, 1996; Marusik et al., 1996] should be referred to *Lepthyphantes obscurus* (Blackwall, 1841).

"*Lepthyphantes*" *cornutus* Schenkel, 1927 Figs 1–9.

L. cornutus Schenkel, 1927: 229, fig. 13a–c (♂);

L. cornutus: Thaler, 1972: 294, figs 19–37 (♂♀);

L. parvus Tanasevitch, 1990: 27, fig. 10: 6–8 (♂). **Syn.n.**

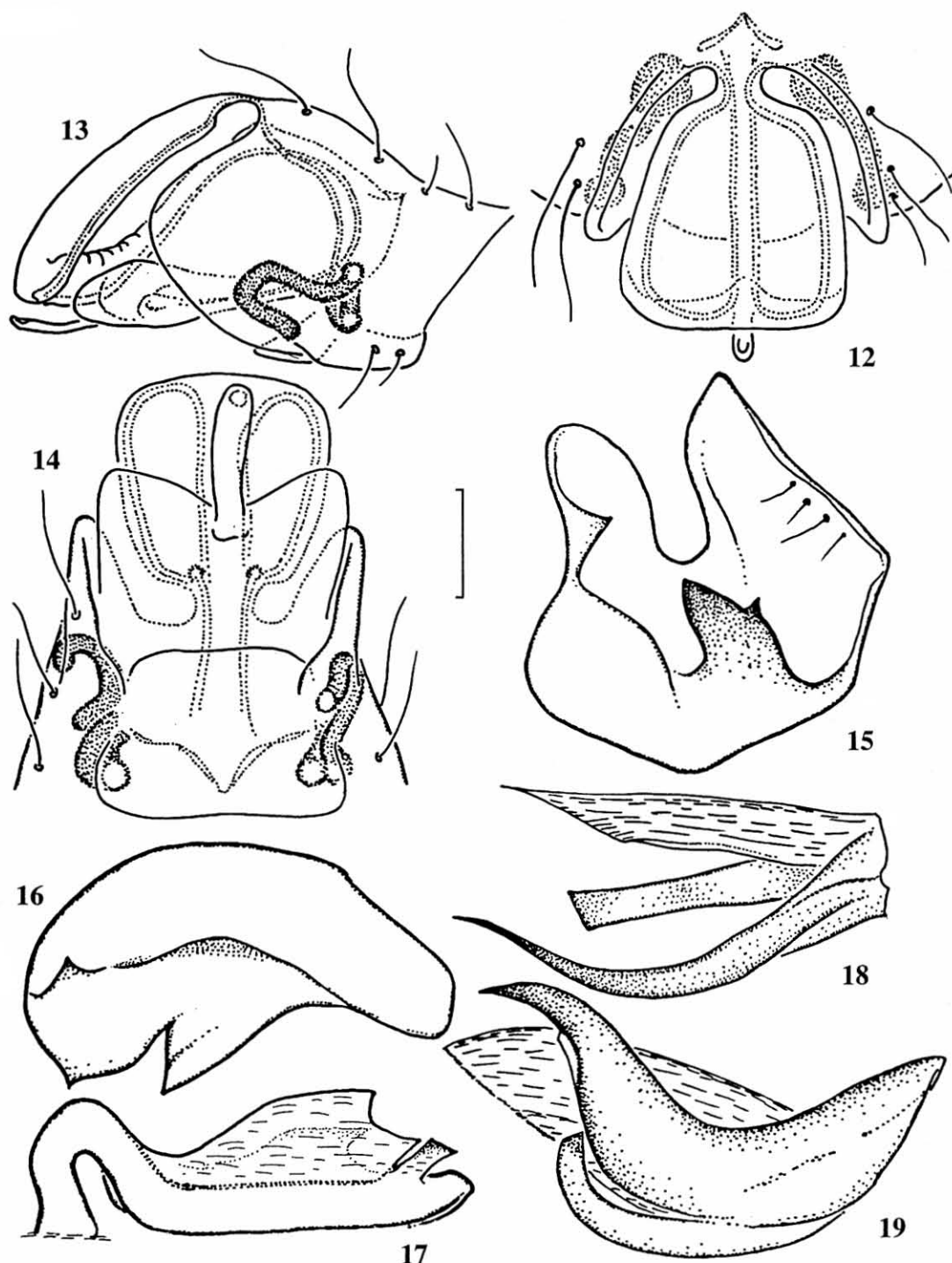
MATERIAL. Middle Urals: 2 ♂♂, 5 ♀♀ (PSU), Perm Area, Kishert Distr., Preduralie Reserve, 10.VI.1982, leg. ?. **North Caucasus:** 1 ♂ (ATC: paratype of *L. parvus*), Stavropol Province, Teberda Reserve, SE slope of Mt. Malaya Khatipara, 2100–2200 m, *Pinus* forest, litter, 6.VII.1986, leg. K.G. Mikhailov.

DIAGNOSIS. This species is a member of the monotypic *cornutus*-complex of *Lepthyphantes* [Saaristo & Tanasevitch, 1993]. The male of "*Lepthyphantes*" *cornu-*



Figs 1–11. Genitalia and carapace of "*Lepthyphantes*" *cornutus* Schenkel, 1927 (1–6: Middle Urals; 7, 9: Alps, after Thaler [1972]; 8: Caucasus, paratype of *Lepthyphantes parvus* Tanasevitch, 1990) and *Improphantes improbulus* (Simon, 1929) (10: paratype of *Lepthyphantes montanouralensis* Esyunin & Efimik, 1991; 11: 1 — embolic division; 2, 3 & 10 — epigyne, dorsal (2) and ventral views (3, 10), respectively; 4–6, 7–8, 11 — lamella characteristic; 9 — male carapace, lateral view. Scale 0.1 mm.

Рис. 1–11. Гениталии и карапакс "*Lepthyphantes*" *cornutus* Schenkel, 1927 (1–6: Средний Урал; 7, 9: Альпы, по Thaler [1972]; 8: Кавказ, паратип *Lepthyphantes parvus* Tanasevitch, 1990) и *Improphantes improbulus* (Simon, 1929) (10: паратип *Lepthyphantes montanouralensis* Esyunin & Efimik, 1991; 11: 1 — эмболюсный отдел; 2, 3 и 10 — эпигина соответственно снизу (2) и сверху (3, 10); 4–6, 7–8 и 10 — ламелла; 9 — карапакс самца сбоку. Масштаб 0,1 мм.



Figs 12-19. Genitalia of *Improphantes geniculatus* (Kulczyński, 1898): 12-14 — epigyne, ventral (12), lateral (13) and dorsal views (14), respectively; 15 — paracymbium; 16-17 — embolus, dorsal (16) and lateral views (17), respectively; 18-19 — lamella characteristica, ventral (18) and lateral views (19), respectively. Scale 0.1 mm.

Рис. 12-19. Гениталии *Improphantes geniculatus* (Kulczyński, 1898): 12-14 — эпигина соответственно снизу (12), сбоку (13) и сверху (14); 15 — парацимбиум; 16-17 — эмболюс соответственно сверху (16) и снизу (17); 18-19 — ламелла соответственно сверху (18) и сбоку (19). Масштаб 0,1 мм.

tus can easily be distinguished from all congeners by the thick large spine on the carapace (Fig. 9). Females are similar to species of the *mughi*-complex by the shape of the epigynal scape, but differ by the basal part of the scape.

DESCRIPTION. Both male and female described by Thaler [1972].

REMARKS. Originally, Schenkel [1927] described this species from the Swiss Alps. However, under the name *Lepthyphantes cornutus* he mixed two different

species, as in fact the females from the type series belonged to *L. antroniensis* Schenkel, 1933. The female of *L. cornutus* was first referred to and described by Schenkel as a *Lepthyphantes* sp. in the same paper [Schenkel, 1927, fig. 20].

Having revised the type series, Thaler [1972] disclosed these mistakes. He also redescribed *L. cornutus* based on material from North Tyrol. However, the lamella of the male palp in the types from the Swiss Alps (Saas-See) displayed two teeth on top, while that of a male from North Tyrol was shown as acuminate with small tines (Fig. 7). The lamella of *Lepthyphantes parvus* is similar to that of *L. cornutus* specimens from the Swiss Alps by two tines on top (Fig. 8). In the Ural population, the structure of the male palp lamella varies strongly not only between different specimens (cf. Figs 4 and 5) but also within the same individual (cf. Figs 4 and 6). The shape variation in lamella in Ural specimens surpasses that of Alpine and Caucasian populations. Although the Ural females are clearly distinguished from Alpine samples by the shape of the median plate of the epigyne, male variability does not seem to allow to regard the Ural population as a separate species. Moreover, we consider that the Caucasian population described as *L. parvus* actually belongs to the very same *L. cornutus*. Hence the above new synonymy. The drawing of the vulva of a Swedish female as given by Kronstedt [1993: fig. 2] corresponds to the vulval structure of Ural specimens (Figs 2–3).

DISTRIBUTION. New to the Urals. Europe: Alps and Lapland [Thaler, 1972], Caucasus [Tanasevitch, 1990], Middle Urals, mountains of East Kazakhstan, and mountains of South Siberia [Eskov, 1992; Marusik et al., 1996].

Improphantes geniculatus (Kulczyński, 1898)

Figs 12–19.

Lepthyphantes geniculatus: Miller, Valčova, 1964, figs 1–3 (♂);

L. geniculatus: Broen, 1966: 73, figs 1, 2, 3a, 4a, 5, 6, 7a–b (♀);

Lepthyphantes wiehle Broen, 1965: 30, figs 1–6 (♂).

MATERIAL. South Urals: 1 ♀ (PSU), Chelyabinsk Area, Troitsk Distr., Troitsky Reserve, steppe, pitfall traps, IX.1994–IV.1995, leg. NM; 1 ♂ (PSU), Orenburg Area, Kuvandyk Distr., Aituar, shrub steppe, pitfall traps, 19–24.V.1997, leg. SE.

DIAGNOSIS. *I. geniculatus* seems especially closely related to *I. nitidus* (Thorell, 1875). Yet its male differs by the bifid lateral branch of the lamella characteristic (vs. acuminate in *geniculatus*) and the shape of the tooth in the middle of the paracymbium, the female by the shape of the proximal part of the scape.

DESCRIPTION. Total length (male/female) 2.5/2.6. Carapace length 1.05, width 0.90. Chaetotaxy: Femur I: 0-1-0-0, II-IV: 0-0-0-0; Tibia I: 2-1-1-0, II: 2-0-1-0, III-IV: 2-0-0-0; Metatarsus I-IV: 1-0-0-0. TmI 0.18-0.19. Carapace, legs, chelicerae and maxillae yellow. Sternum yellow-grey. Abdomen grey, dorsal pattern absent. Paracymbium in middle part with a large tooth (Fig. 15). Lamella characteristic with three branches (Figs 18–19). Embolus as in Figs 16–17. Epigyne as in Figs 12–14.

REMARKS. This species has hitherto been known in Russia from the Samara Area only [Krasnobaev, 1992: as *L. wiehle*; Krasnobaev, Matveev, 1993: as *L. wiehle*]. Over the whole of its disjunct range, *I. geniculatus* only occurs in steppe habitats. Apparently, the disjunctions are caused by fragmentation of the formerly uniform steppe belt in the south of the Russian Plain. In this case, the existing populations are perhaps relict of nature.

DISTRIBUTION. M- and E-Europe, Russia: Samara Area, South Urals.

Improphantes holmi (Kronstedt, 1975)

Lepthyphantes holmi Kronstedt, 1975, 162, figs 1–8 (♂♀).

MATERIAL. South Urals: 1 ♀ (ATC), Chelyabinsk Area, Troitsk Distr., Troitsky Reserve, steppe of *Stipa* and other herbs, 1986, leg. Polyanina; 1 ♀ (ATC), same locality, litter, 20.X.1991, leg. V. Novokshonov; 6 ♂♂, same locality and biotope, pitfall traps, IX.1994–IV.1995, leg. NM; 1 ♂, 7 ♀♀ (ATC), same locality, reed-clad shore of Lake Kukai, pitfall traps, VI.1992, leg. P. Durmanov (all det. A.V. Tanasevitch).

DIAGNOSIS and DESCRIPTION. See Kronstedt [1975].

REMARKS. New to Russia. "*L. holmi* seems to prefer undisturbed grassy vegetation (e.g. meadow, abandoned arable land, grassy edges of cultivated fields)" [Kronstedt, 1975: 165].

DISTRIBUTION. N-Europe: Sweden; South Urals.

Improphantes improbulus (Simon, 1929)

Figs 10–11.

Lepthyphantes improbulus: Thaler, 1986: 312, figs 1–3, 5–10, 13 (♂♀);

L. improbulus: Tanasevitch, 1990: 22, fig. 7: 1–3 (♂♀);

L. improbulus: Esysunin & Efimik, 1991: figs 2, 4 (♀);

L. montanouralensis Esysunin & Efimik, 1991: 140, figs 1, 3 (♀). **Syn.n.**

MATERIAL. Middle Urals: 1 ♀ (ZMMU: holotype of *L. montanouralensis*), Perm Area, Gornozavodsk Distr., Northern Basegi Mts., *Betula* elfin woodland, pitfall traps, 11.VII.1984, leg. SE; 1 ♂ (PSU), same locality, mountain lichen tundra, pitfall traps, 17.IX.1990, leg. SE; 1 ♀ (PSU: paratype of *L. montanouralensis*), Perm Area, Kishert Distr., Preduralie Reserve, "Kamaiskie Zubsty" Rock, 24.VI.1985, leg. N.M. Pakhorukov; 1 ♂ (PSU), Perm Area, Kungur Distr., Spasskaya Gora Reserve, limestone denudations, 1.IX.1987, leg. SE; 2 ♀♀ (PSU), same locality and biotope, 19.IX.1987 and 17.VI.1989, leg. V.O. Kozminykh. South Urals: 1 ♀ (PSU: paratype of *L. montanouralensis*), Iremel Mts., mountainous tundra, sweeping, 23.VII.1986, leg. V.N. Olshvang; 1 ♀ (PSU: paratype of *L. montanouralensis*), Bashkiria, Burzyan Distr., floodland of Belaya River, rock, 26.VI.1986, leg. VE; 2 ♀♀ (PSU), Bashkiria, Kurmanaevskaya Cave and Tash-Astinskii Grotto, 20.IX.1984, leg. V.A. Kniss.

DIAGNOSIS and DESCRIPTION. See Thaler [1986] and Esysunin & Efimik [1991].

REMARKS. *L. montanouralensis* has been described from the Urals from four females. The shape of the epigynal scape and the sizes of the females have been used as discriminating features.

Fortunately, the above limited material accumulated during the few last years appears to contain two males. Their study has revealed that all Ural populations fail to differ from the European *I. improbulus* (cf. Fig. 11). Moreover, even the structure of the epigyne is very similar (cf. fig. 13 in Thaler [1986] and Fig. 10). Hence the above new synonymy.

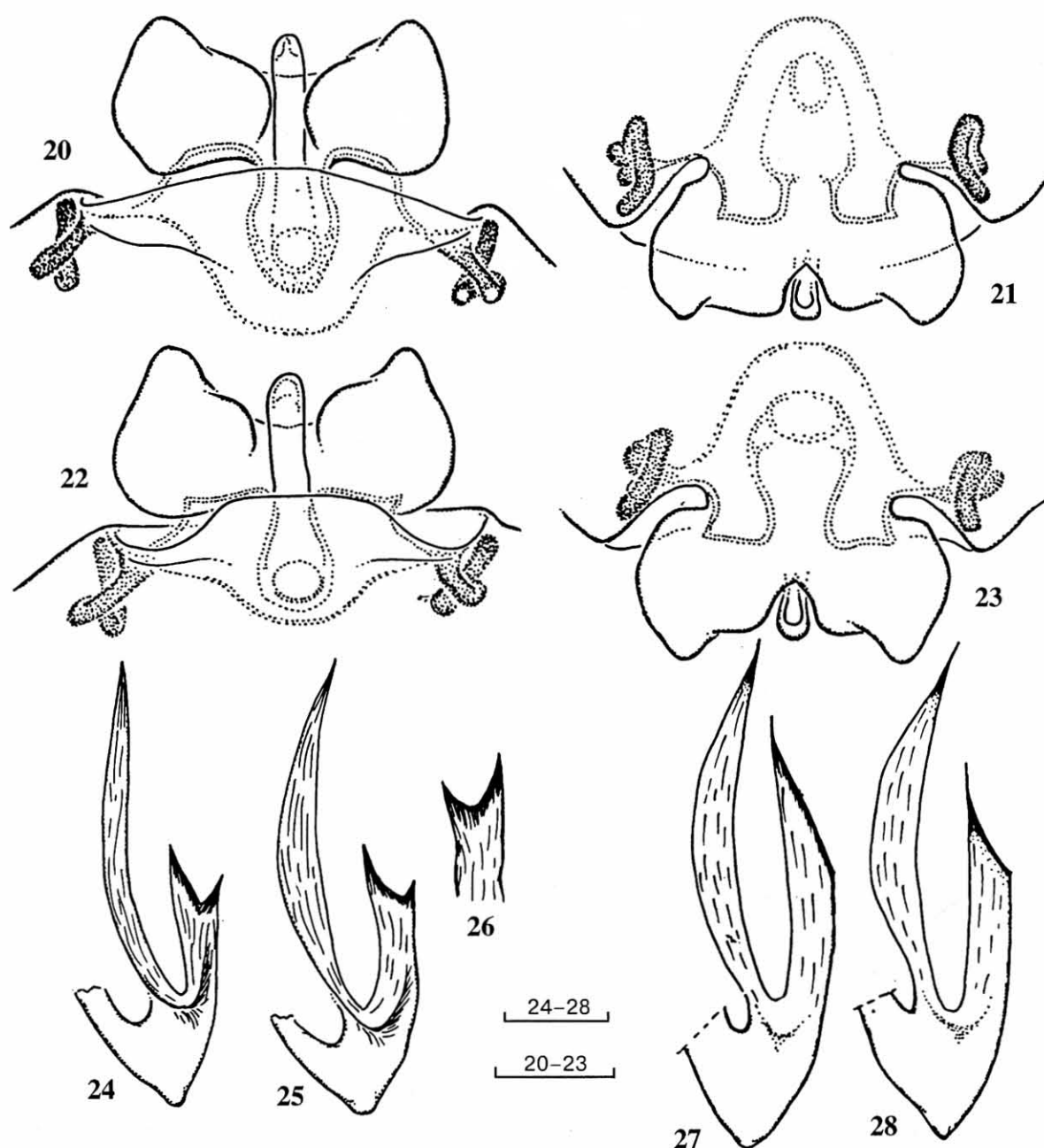
DISTRIBUTION. The mountainous regions of Europe [see Map 1 in Thaler, 1986], North Caucasus [Tanasevitch, 1990], Urals, and East Kazakhstan [Eskov, 1992].

"*Lepthyphantes*" *obscurus* (Blackwall, 1841)

Figs 20–26.

L. obscurus: Wiehle, 1956: 188, figs 315–318 (♂♀);

L. obscurus: Marusik, Hippa & Koponen, 1996: figs 17–18, 22–23 (♂♀).



Figs 20–28. Genitalia of “*Leptyphantes*” *obscurus* (Blackwall, 1841) (20–23, 25: South Yamal; 24, 26: South Urals) and “*Leptyphantes*” *pseudoobscurus* Marusik, Hippa & Koponen, 1996 (27: Kamchatka; 28: Irkutsk Area): 20–23 — epigyne, dorsal (20, 22) and ventral views (21, 23), respectively; 24–25, 27–28 — lamella characteristic; 26 — top of lateral branch of lamella characteristic. Scale 0.1 mm.

Рис. 20–28. Гениталии и карапакс “*Leptyphantes*” *obscurus* (Blackwall, 1841) (20–23, 25: Южный Ямал; 24, 26: Южный Урал) и “*Leptyphantes*” *pseudoobscurus* Marusik, Hippa & Koponen, 1996 (27: Камчатка; 28: Иркутская область): 20–23 — эпигина соответственно снизу (21, 23) и сверху (20, 22); 24–25, 27–28 — ламелла; 26 — вершина латеральной ветви ламеллы. Масштаб 0,1 мм.

MATERIAL. West Siberian Plain: 2 ♂♂, 5 ♀♀ (PSU), southern Yamal Peninsula, Khadyta-Yakha River, inundated *Betula* forest, VII–VIII.1981–1982, leg. SE. North Urals: 4 ♂♂, 8 ♀♀ (PSU), Perm Area, Krasnovishersk Distr., Vishersky Reserve, *Betula* forest, VIII.1994–1995, leg. NM. Middle Urals: ♂♂, ♀♀ (PSU), Perm Area, Gornozavodsk Distr., Basegi Reserve, *Abies* forest and open woodland, *Betula* forest on bog, VI–IX.1990, leg. SE; 1 ♂ (PSU), environs of Perm City, *Pinus* forest, VI.1989, leg. SE; 6 ♂♂, 8 ♀♀ (PSU), Perm Area, Kishert Distr., Preduralie Reserve, *Pinus*, *Picea* and *Abies* forest, *Tilia* grove, VI.1983–1989,

leg. T.I. Gridina; 1 ♂, 3 ♀♀ (PSU), Ekaterinburg Area, Visimsky Reserve, *Betula* and *Abies* forests, VII–VIII.1993–1996, leg. T. Lokteeva and NM. South Urals: 1 ♂ (PSU), Chelyabinsk Area, Iremel Edge, VII.1986, A. Polyanin; ♂♂, ♀♀ (PSU), Bashkiria, Shulgan-Tash Reserve, broad-leaved forest, VI.1985, VE.

COMPARATIVE MATERIAL. “*Leptyphantes*” *pseudoobscurus* Marusik, Hippa & Koponen, 1996. East Siberia: 1 ♂, 3 ♀♀ (ATC), Eastern Chukot Peninsula, upper reaches of Bolshaya Osinovaya River (affluent of Belaya River), 10–15.VII.1989, Yu.M. Marusik. Kamchatka: 1 ♂ (ATC), Paratunka, *Betula* forest,

12.VIII.1987, A.V. Tanasevitch. Middle Siberia: 1 ♂ (ATC), Irkutsk Distr., Lake Baikal, near Bolshie Koty, VII.1988, A.V. Tanasevitch.

DIAGNOSIS. The present species is closely related to "*L. pseudoobscurus*". The males of "*L. obscurus*" differ by the following features: (1) lateral branch of lamella characteristica hardly reaching the midway of internal branch, and (2) lateral branch with two well-appreciable prongs. In contrast, the second prong on the lateral branch of the lamella characteristica in the Siberian species is weakly expressed or completely absent (cf. Figs 24–26 and 27–28). However, the females of these two species seem undistinguishable. According to Marusik et al. [1996: 17], "epigyne of *L. pseudoobscurus* is somewhat smaller than in *L. obscurus*; epigynal scape of *L. pseudoobscurus* is widened in the down part, while in related species in apical (basal) part".

DESCRIPTION. See Wiehle [1956].

REMARKS. The records of this species in the Urals are controversial. First, a paratype of *L. pseudoobscurus* from the Polar Urals was turned out to actually represent *L. obscurus* [cf. Koponen et al., 1998]. Second, we have misidentified some Ural specimens as belonging to that Siberian species [Esysunin & Efimik, 1996]. At the moment, however, with further samples at hand, especially Siberian ones used for comparative purposes, it becomes increasingly clear that all Ural populations seem to belong to one and the same species, i.e. the European *L. obscurus*. Hence all records of the Siberian *L. pseudoobscurus* in the Urals [Marusik et al., 1996; Esysunin & Efimik, 1996] are erroneous.

DISTRIBUTION. The distribution pattern is not fully clear. Occurrences of *L. obscurus* all over Europe, in western Siberia and China (Xinjiang Uygur) cause no doubt. In central and East Siberia, however, this species seems to be fully replaced by the sibling *L. pseudoobscurus*.

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