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Reconsideration of *Lepthyphantes montanus* Kulczyński, 1898 and *Lepthyphantes milleri* Staręga, 1972 (Araneae: Linyphiidae)

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Summary

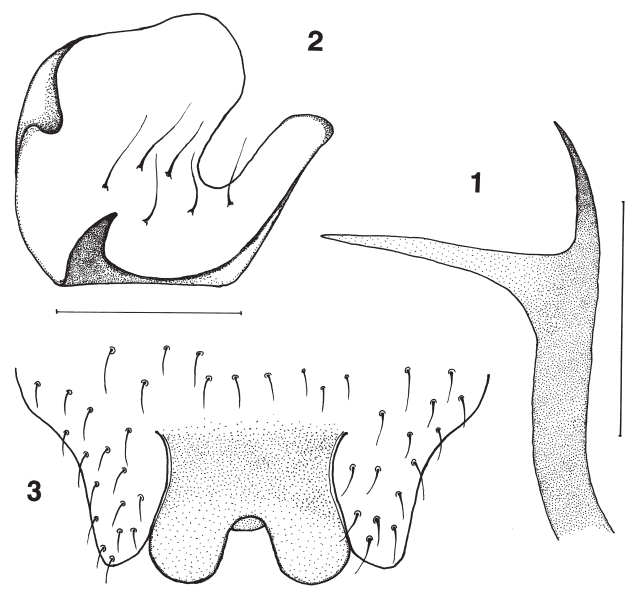
Description and distribution of two sibling species, *Lepthyphantes montanus* Kulczyński, 1898 and *Lepthyphantes milleri* Staręga, 1972, is presented.

Introduction

About 60 species of the genus *Lepthyphantes* have been recorded from Central Europe (Bosmans in Heimer & Nentwig, 1991). Out of these, six species belong to the *pallidus* group. *Lepthyphantes montanus* was described by Kulczyński (1898) based on one male collected by B. Kotula in the Alps. The first female of this species was collected by J. Wunderlich 70 years later. Because of having only a single female, Wunderlich failed to relate it to *L. montanus* and described it as *L. charlottae* Wunderlich, 1969. In 1971 Staręga found several females in the Carpathian Mts in Poland that he described as *L. milleri* Staręga, 1972. Soon after, he described a male (Staręga, 1976: 266–7, fig. 1). Closer inspection of this figure showed that this specimen in fact belongs to the *mansuetus* group. The true males of *L. milleri* were collected 30 years ago by Balogh & Loksa (1947) in the Carpathian Mts, but these authors misidentified them as *L. montanus*. In the sixties, a number of males and

females of *L. montanus* were found in several sites in the Alps, and described by Thaler (1973) and Palmgren (1973). Thaler came to the conclusion that *L. charlottae* is a synonym of *L. montanus* and pointed out that *L. milleri* is very close to *L. montanus*. However, he did not revise the material of Balogh & Loksa and concluded that it belonged to *L. montanus*.

Recently, one of the authors collected several male and female specimens of *Lepthyphantes* in Slovakia near the border with Poland in the same mountain range where Staręga captured *L. milleri*. From the first moment it was clear that the females are identical with females of *L. milleri*. Detailed investigation of the males revealed that they are different from males of *L. montanus*. Thanks to comparison with specimens of *L. montanus* from the Palmgren collection we are now able to reconsider the taxonomic status of *L. montanus* and *L. milleri*, and describe their specific differences.



Figs. 1–3: *Lepthyphantes montanus* Kulczyński, 1891. **1** Left palp, lamella characteristica, retrolateral view; **2** Left palp, paracymbium, retrolateral view; **3** Epigyne. Scale lines = 0.1 mm (1, 2), 0.25 mm (3).

Abbreviations: Institutions: ZMH=Zoological Museum, Helsinki, Finland; SMF=Senckenberg Museum, Frankfurt am Main, Germany. Legs: Fe, Pt, Ti, Mt=femur, patella, tibia, metatarsus. Leg spination: d, pr, rt, v=dorsal, prolateral, retrolateral, ventral.

***Lepthyphantes montanus* (Kulczyński, 1898)** (Figs. 1–3, Map 1)

Lepthyphantes montanus Kulczyński, 1898: 88–90, figs. II/61, 62; Roewer, 1928: 69, fig. VI/3; Thaler, 1973: 299–303, figs. 38–53; Palmgren, 1973: 31, fig. 2; Heimer & Nentwig, 1991: 200, figs. 539.1, 539.3.

Lepthyphantes charlottae Wunderlich, 1969: 386, figs. 15–17.

Material examined: AUSTRIA: N. Tyrol: Inneralpbach, 1 ♂, 16 June 1961, P. Palmgren leg. (ZMH 158); Rattenberg, 1 ♀, 12 June 1961, P. Palmgren leg. (ZMH 120); Kitzbühel, 1 ♀, June 1968, J. Wunderlich leg. (holotype of *L. charlottae*, specimen SMF 24438/1, epigyne SMF 24438).

Description (♂, ♀): Total length *c.* 1.8 mm, prosoma 0.77–0.88 mm long, 0.64–0.72 mm wide (Thaler, 1973). Prosoma and legs yellow, abdomen pale greyish with light pattern. Fe I pr 1; Pt I–IV d 1; Ti I d 2, pr 1, rt 1; Ti II d 2, rt 1; Ti III–IV d 2; Mt I–III d 1. Palp: Distal lateral tooth of lamella characteristica about twice as long as tip (Fig. 1). Ventral edge of paracymbium with single long tooth (Fig. 2). Epigyne: Base of

scape in ventral view much wider than lateral lobes at same level, and only slightly narrower than distal lobes of scape, which diverge only slightly. Lateral lobes very broad at base and concave laterally (Fig. 3).

Diagnosis: Males distinguished from *L. milleri* by longer distal lateral tooth on the lamella characteristica and by single long tooth on ventral edge of paracymbium; females by base of scape being much wider than lateral lobes of epigyne at same level, and distal lobes of scape less divergent, and by lateral lobes being wider at base and concave laterally. Distinguished from all other species of the *pallidus* group by males having two distinct prongs at end of lamella characteristica, and by females having a bilobed scape.

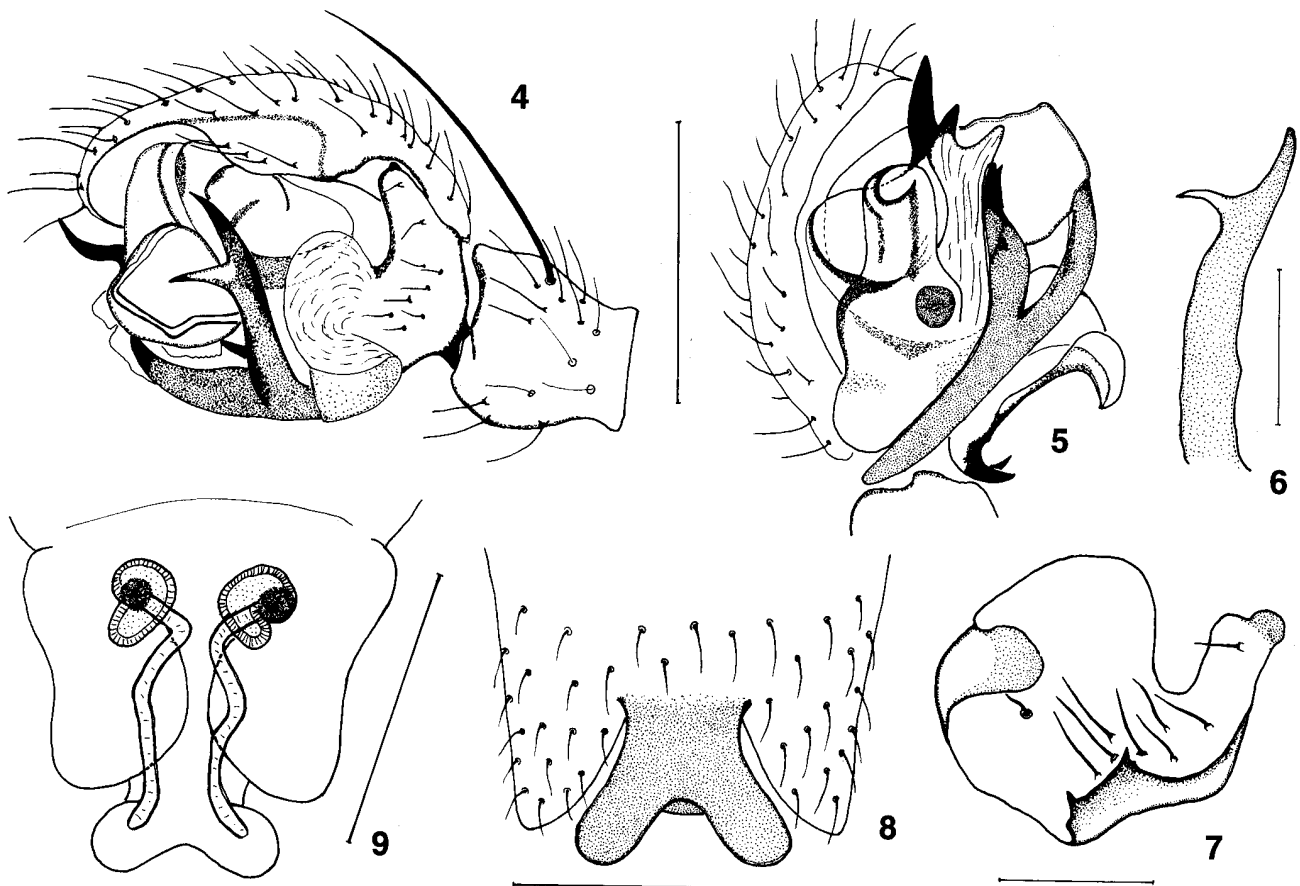
Distribution: Known only from the eastern Alps (Map 1). AUSTRIA: Lower Austria, Semmering-Pass (type locality, Kulczyński, 1898; Roewer, 1928; Kropf & Horak, 1996), Styria (Palmgren, 1973; Kropf & Horak, 1996), N. Tyrol (Wunderlich, 1969; Palmgren, 1973; Thaler, 1973, 1995). ITALY: S. Tyrol, Brixen/Bressanone (Thaler, 1973; Zingerle, 1997). GERMANY: S. Bavaria (Blick & Scheidler, 1991).

***Lepthyphantes milleri* Starega, 1972** (Figs. 4–9, Map 1)

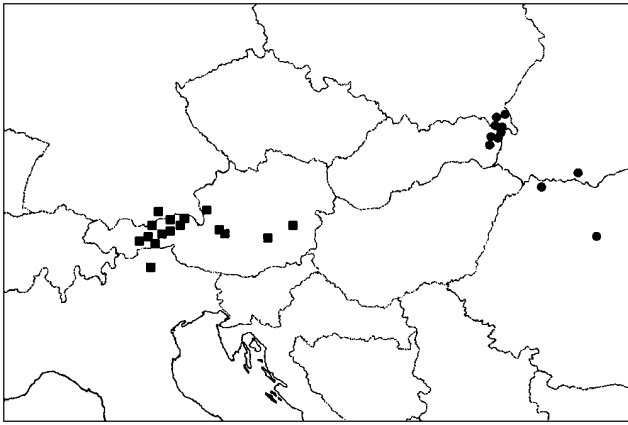
Lepthyphantes montanus: Balogh & Loksa, 1947: 68, figs. 3, 4 (♂, misidentification).

Lepthyphantes? sp. n. *charlottae?* Starega, 1971: 86–87 (♀).

Lepthyphantes milleri Starega, 1972: 67–69, figs. 3, 4, fot. 2 (♀).



Figs. 4–9: *Lepthyphantes milleri* Starega, 1972. **4** Left palp, retrolateral view; **5** Left palp, ventral view; **6** Lamella characteristica, retrolateral view; **7** Paracymbium, retrolateral view; **8** Epigyne, ventral view; **9** Vulva, dorsal view. Scale lines=0.1 mm (6, 7), 0.25 mm (4, 5, 8, 9).



Map 1: Distribution of *Lepthyphantes montanus* Kulczyński (squares) and *Lepthyphantes milleri* Staręga (circles) in Central Europe.

Material examined: SLOVAKIA: Nová Sedlica (grid number 6900), State Nature Reserve Stužica, near river Stužica, 1 ♂, 12 July–3 August 1988 (pitfall trap); same locality, 1 ♂ 1♀, 14 September 1993; Zboj (gr. n. 6900), Zbojský potok, Na Mlákach, 2 ♀, 24 May 1994; Zboj, State Nature Reserve Stinská, 1 ♂, 26 May 1994; same locality, 1 ♀, 28 June–12 September 1994 (pitfall trap), 1 ♂ 1♀, 11 July–19 September 1995 (pitfall trap); Remetské Hámre (gr. n. 7199), Jedlinka, 1 ♀, 8 October 1996; Strihovce (gr. n. 7099), Fetkov, 1 ♂ 1 ♀, 9 June–14 August 1997 (pitfall trap). All specimens collected by V. Thomka and deposited in his collection.

Description (♂, ♀): Total length *c.* 1.9 mm. Prosoma 0.81–0.89 mm long, 0.70–0.77 mm wide. Prosoma and legs yellow, abdomen grey with indistinct markings. Fe I pr 1; Pt I–IV d 1; Ti I pr 1, d 2, rt 1; Ti II d 2, rt 1; Ti III–IV d 2; Mt I–III d 1. Palp: Distal lateral tooth of lamella characteristic about same length as tip (Figs. 4, 5). Ventral edge of paracymbium with two short teeth on a ridge (Figs. 6, 7). Epigyne: Base of scape in ventral view about same width as lateral lobes at same level, and much narrower than distal lobes of scape, which are divergent. Lateral lobes almost straight-sided (Figs. 8, 9).

Diagnosis: Males distinguished from *L. montanus* by shorter distal lateral tooth on the lamella characteristic and by two short teeth on ventral edge of paracymbium; females by base of scape being about same width as lateral lobes at same level, and much narrower than widely divergent distal lobes, and by lateral lobes being straight-sided.

Distribution: This species has been collected only in the eastern part of the Carpathian mountains (Map 1). UKRAINE: Mt. Hoverla (Balogh & Loksa, 1947). ROMANIA: Răstolița (Ratosnya), Remeți (Jádremete) (Balogh & Loksa, 1947). POLAND: Bieszczady (Staręga, 1971, 1972). SLOVAKIA: Bukovské vrchy.

Remarks: *L. montanus* can be considered as endemic to the eastern Alps as it is absent in Switzerland (Maurer & Hänggi, 1990). *L. milleri* appears to be an East-Carpathian endemic (Map 1). Both species were found in similar biotopes of the submontane zone and are presumed to be geographical vicariants.

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