

Vermontia, a linyphiid genus new to the Palaearctic, and new records of spiders from northeast Asia (Araneae)

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Summary

The linyphiid genus *Vermontia* Millidge, 1984 is recorded for the first time from the Palaearctic. Two families (Argyronetidae and Mimetidae) and four species have been found for the first time in northeast Asia. New material significantly extends the data on distribution of 9 species. Three species: *Hilaira canaliculata* (Emerton, 1915), *H. pelikena* Eskov, 1987 and *Vermontia thoracica* (Emerton, 1913) are illustrated. The female of *H. pelikena* is described for the first time. *Ozyptila trux* (Blackwall, 1846) is confirmed to occur in northeast Siberia. Distributions of *Micaria guttulata* (C. L. Koch, 1839), *H. canaliculata*, *H. pelikena*, *Silometopus reussi* (Thorell, 1871), *V. thoracica*, *Pardosa podhorskii* (Kulczyński, 1907) and *Tricca insignita* (Thorell, 1872), and new records of *Ero furcata* (Villers, 1789), are shown on maps.

Introduction

The spider fauna of northeast Asia has been investigated actively during the last 15 years. During this period the known number of species in the Magadan Area (including Chukotka) has risen from 36 to 550 (Marusik *et al.*, 1992a; Marusik & Koponen, 2000). While the known fauna of the extreme northeast of Siberia is the largest among all faunas lying north of 60°N except for Fennoscandia, recent studies done during the last five years in the Magadan Area, northeast Yakutia, Chukotka and in the Kurile Islands allow us to add several additional species and even supraspecific taxa: one genus new to the Palaearctic and two families new to northeast Siberia. These new finds extend the ranges of the species discussed below. As well as new data on East Palaearctic species, new information about the distributions of some Nearctic species is also provided.

Abbreviations used in the text: BMUW=Burke Memorial Museum, University of Washington, Seattle; IBPN=Institute for Biological Problems of the North, Magadan; ZMMU=Zoological Museum of Moscow University; ZMUT=Zoological Museum, University of Turku.

Review of species

Family Argyronetidae

Argyroneta aquatica (Clerck, 1757)

Material examined: RUSSIA: *Magadan Area:* 1♀ 2juv. (IBPN), c. 150 km W of Magadan, shallow lakes near seashore, summer 1995 (K. V. Regel).

Comments: This Transpalaearctic species was known until recently to occur from Europe to north Sakhalin (Marusik *et al.*, 1992b), northward to the Arctic Ocean coast (Palmgren, 1977), north Ural (Esyunin & Efimik, 1996) and southern Yakutia (Marusik *et al.*, 1993), and south to Azerbaijan, Uzbekistan (Mikhailov, 1997), Inner Mongolia (Song *et al.*, 1999), Honshu and Korea. Recently it was reported from north Cisokhotia (Marusik *et al.*, 2000). Our record from the Magadan Area is the most north-easterly locality of its range.

Family Gnaphosidae

Micaria guttulata (C. L. Koch, 1839) (Map 1)

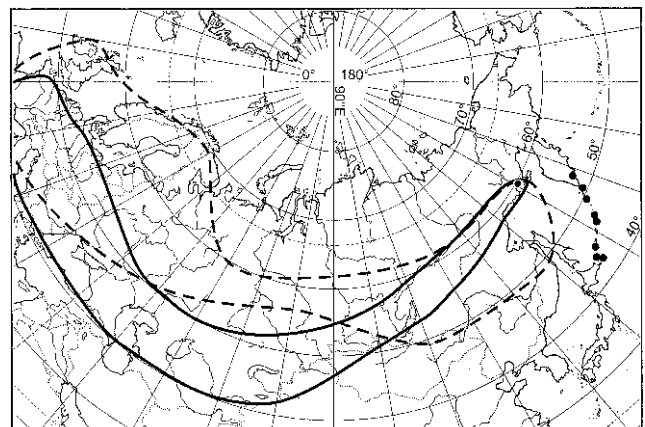
Material examined: RUSSIA: *Magadan Area:* 3♂ 3♀ (IBPN & ZMMU), 29 km N of Magadan, Snow Valley village, Dukcha River valley (c. 151°E, 59°43'N), summer 2000 (S. P. Bukhkalov).

Comments: Until recently this species was known to have a Euro-Yakutian nemoral range: from Europe to Yakutia and southwards to Kyrgyzstan and Tuva in Asia (Marusik *et al.*, 2000). At the same time *M. guttulata* is almost unknown from the European part of Russia. This new find extends its known range about 23° to the east (or 1200 km) and Magadan is the most north-easterly locality of its range. Therefore, at present its distribution should be regarded as Transpalaearctic (or Eurasian) boreo-nemoral (see Map 1).

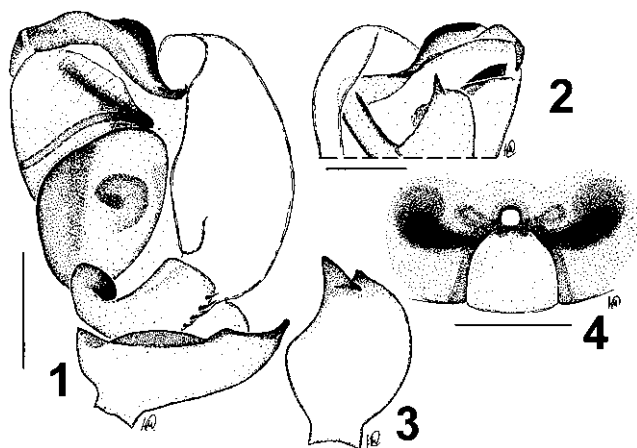
Family Mimetidae

Ero furcata (Villers, 1789) (Map 1)

Material examined: RUSSIA: *Magadan Area:* 1♀ (IBPN), 29 km N of Magadan, Snow Valley village, Dukcha River valley (c. 151°E, 59°43'N), summer 2000 (S. P. Bukhkalov). *Kamchatka Area:* 1♀ (IBPN), <KA-105-112> Petropavlovsk-Kamchatski, Zavoiko suburb (52.962°N, 158.682°E), 17 September 1996 (Y. M. Marusik); 1♀ (IBPN), <KA-113-115>, 10 km N of Petropavlovsk-Kamchatski (53.028°N, 158.731°E), 18 September 1996 (Y. M. Marusik). *Kurile Isles:* numerous ♂♂ ♀♀ and juv. (IBPN) from Shumshu, Onkotan, Ketoi, Simushir, Iturup, Kunashir and Shikotan Islands, 1995–1997 (Y. M. Marusik).



Map 1: Ranges of *Silometopus reussi* (---) and *Micaria guttulata* (—), and new records of *Ero furcata* (●).



Figs. 1–4: Copulatory organs of *Vermontia thoracica*. **1** Left male palp, retrolateral view; **2** Apical part of bulbus, prolateral view; **3** Palpal tibia, dorsal view; **4** Epigyne, ventral view. Specimens from Alaska. Scale lines=0.1 mm.

Comments: This species has a Transpalaearctic boreo-nemoral range and occurs from Europe to Japan (Platnick, 2000). In Europe the northern limit of its distribution is about 70° in Lapland (Koponen, 1984) and 62°N in Asia: north Ural (Esyunin & Efimik, 1996) and Yenisei (Eskov, 1988). It seems that this species does not occur in Asia in areas with a highly continental climate (e.g. Yakutia, Tuva, Mongolia, Kolyma). Our records of this species from the environs of Magadan, Kamchatka and in the Kuriles are new to the Russian Far East, and Mimetidae is a new family for the three provinces listed. The Kamchatka locality extends the eastern limits of *E. furcata* by about 16°. The range of this species can be considered as Transpalaearctic (Eurasian) boreo-nemoral.

Family Linyphiidae

Silometopus reussi (Thorell, 1871) (Map 1)

Material examined: RUSSIA: *Magadan Area*: 1♂ (IBPN), 29 km N of Magadan, Snow Valley village, Dukcha River valley (c. 151°E, 59°43'N), summer 2000 (S. P. Bukhhalo).

Comments: This species has a Transpalaearctic (or Eurasian) boreo-nemoral range extending from Europe to north Sakhalin (Eskov, 1994) and southwards to Xinjiang (Song *et al.*, 1999). In Europe it ranges north to Lapland (Palmgren, 1976) and middle Ural (Esyunin & Efimik, 1996). Our record from near Magadan extends its known range about 8° of latitude and longitude to the north and east (or about 900 km), and is the most northerly locality of this species in Asia. The range of *S. reussi* is shown in Map 1.

Vermontia thoracica (Emerton, 1913) (Figs. 1–4, Map 2)

Tmeticus thoracicus Emerton, 1913: 216, pl. 2, f. 2 (D♂).

Gongylidium unidentatum Emerton, 1917: 264, f. 16 (D♂).

Oedothorax unidentatus: Crosby & Bishop, 1928: 1050.

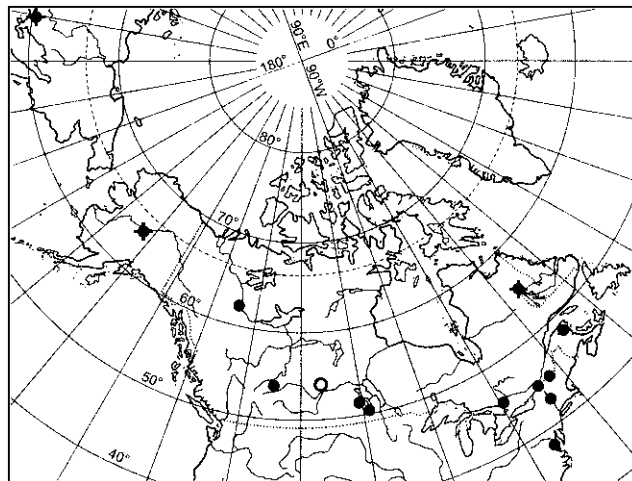
Smidigoides thoracicus: Crosby & Bishop, 1936: 54, pl. 4, f. 5–7 (♂, D♀).

Vermontia thoracica: Millidge, 1984: 167, f. 179–185 (T♂♀ from *Microcentria*=*Diplocentria*).

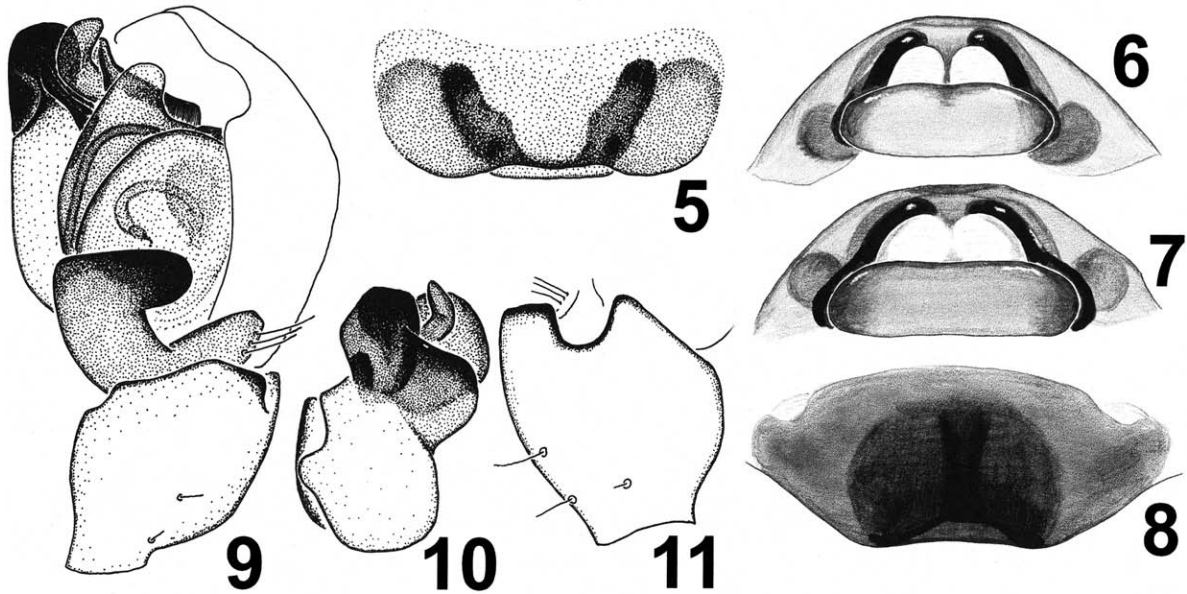
Material examined: RUSSIA: *Magadan Area*: 1♂ 1♀ (IBPN), 29 km N of Magadan, Snow Valley village, Dukcha River valley (c. 151°E, 59°43'N), tussock-moss-lichen bog, 29 September 1993 (Y. M. Marusik). USA: *Alaska*: 4♂ 9♀ (IBPN): (106) Fairbanks, spruce forest with *Polytrichum* moss, 25 July 1993 (Y. M. Marusik). CANADA: *Quebec*: 8♂♀ (ZMUT), Schefferville, 54°50'N, 66°50'W, 24 July–7 August 1978 (S. Koponen).

Distribution: *V. thoracica* is the type species of the monotypic genus *Vermontia* Millidge, 1984. Until recently the known distribution of this species extended from Northwest Territories to New Brunswick, and south to New York (cf. Millidge, 1984: map 13, and Buckle *et al.*, 2001); specifically Vermont, New York, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta and Northwest Territories. During brief excursions in the environs of Fairbanks, Alaska, and Magadan, northeast Siberia, in 1993 the first author found this species in localities rather far west of its previously known range. The vicinity of Magadan is the first, and so far the only, locality for *V. thoracica* in the Palaearctic. Its known range can now be referred to as East Siberian – Transnearctic boreo-nemoral.

Taxonomic position: According to Saaristo & Eskov (1996) this genus together with *Semljicola* Strand, 1906 and *Gibothorax* Eskov, 1989 comprise a monophyletic group within the *Tapinocyba* group of genera (*sensu* Millidge, 1977). However, in our opinion, judging from the conformation of the male palp *Vermontia* is more closely related to *Diplocentria* Hull, 1911 (particularly *D. perplexa* (Chamberlin & Ivie, 1939)) than to *Semljicola* or *Gibothorax*, and it was even placed in *Diplocentria* by Crosby & Bishop (1936, as *Smidigoides*, a junior synonym of *Diplocentria*). Members of these two genera have a distinctive suprategular apophysis, thickened embolus and male palpal tibia with two apophyses (cf. Millidge, 1984: figs. 131–147, 179–181, 185). However, the epigyne of *V. thoracica* is more similar to those of *Semljicola* and *Gibothorax* than to the epigynes of most species of



Map 2: Distribution of *Vermontia thoracica*. ●=localities recorded by Millidge (1984); ○=province record (Buckle *et al.*, 2001); ◆=new records.



Figs. 5–11: Copulatory organs of *Hilaira canaliculata*. **5, 8** Epigyne, ventral view; **6, 7** Epigyne, view from behind; **9** Left male palp, retrolateral view; **10** Embolic division, prolateral view; **11** Male palpal tibia, dorsal view. 5–6 and 9–11: specimens from Magadan; 7: from Quebec; 8: from Paramushir I.

Diplocentria. As in the male palps, however, the epigynes of *V. thoracica* and *D. perplexa* are rather similar. All the genera listed here have north Holarctic arcto-boreo-montane distributions.

***Hilaira canaliculata* (Emerton, 1915)** (Figs. 5–11, 17–22, Map 3)

Gongylidium canaliculatum Emerton, 1915: 151, pl. 2, f. 6 (D♂♀).

Soudinus canaliculatus: Crosby & Bishop, 1936: 59, pl. 5, f. 17–20 (♂♀).

H. aquilonia Hackman, 1954: 27, f. 93, 97–99, 101 (D♀).

Sciastes aquilonia: Eskov, 1981: 1487 (T from *Hilaira*).

Soudinus canaliculatus: Aitchison-Benell & Dondale, 1990: 224 (T from *Hilaira*, S).

H. ryabukhini Eskov & Marusik, 1991: 244, f. 41–45 (D♂♀).

H. canalicata: Marusik *et al.*, 1993: 68 (S).

Material examined: RUSSIA: *Magadan Area*: 2♂ 9♀ (IBPN & ZMMU), 29 km N of Magadan, Snow Valley village, Dukcha River valley (c. 151°E, 59°43'N), 29 June 1996 (Y. M. Marusik). *Sakhalin Area*: 6♂ 13♀ (IBPN), Paramushir I., NE shore, Severo-Kurilsk env., 50°40'N, 156°06'E, 10 August–15 September 1996 (Y. M. Marusik); 1♂ 1♀ (ZMUT), Paramushir I., SW shore,

Taina River, 50°22'N, 155°36.67'E, 21 August 1996 (Y. M. Marusik); 1♀ (BMUW), Paramushir I., <PA-96-RLC-004>, pond in Utyosnaya Edge valley, 50.629°N, 156.129°E, 5 m, ex *Sphagnum* in bog, 1 August 1996 (R. Crawford); 1♂ 3♀ (BMUW), <PA-97-RLC-053>, Krashennikova Bay, 50.283°N, 155.349°E, 5 m, ex *Sphagnum* in beach meadow bog, 14 August 1996 (R. Crawford). CANADA: *Quebec*: 1♂ 1♀ (ZMUT, AE 127), Kuujjuarapik, 55°17'N, 77°48'W, swamp, 1983 & 1985 (S. Koponen); 2♀ (ZMUT, AE 123, 126), Kuujjuarapik, 54°50'N, 77°48'W, bog, 17–28 July 1983 (S. Koponen); 1♂ (ZMUT, AE 124), Kuujjuarapik, 54°50'N, 77°48'W, *Sphagnum*, 25 August 1985 (S. Koponen); 8♀ (ZMUT), same locality, 1985 & 1990 (S. Koponen); 2♀ (ZMUT), Schefferville, 54°50'N, 66°50'W, 24 July–7 August 1978 (S. Koponen); 1♀ (ZMUT, AE 128), Schefferville, Iron Arm, 54°50'N, 66°50'W, bog, 21 July–6 August 1978 (S. Koponen).

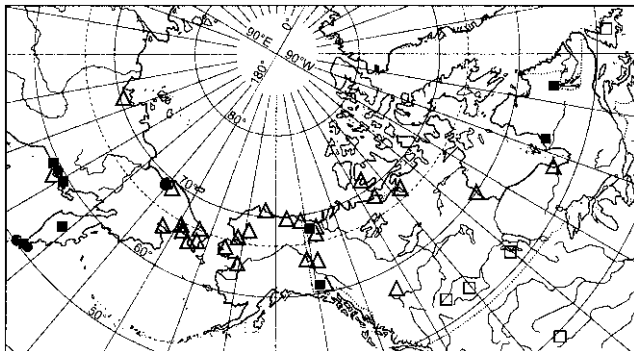
Comments: This species is widely distributed in the Nearctic and known there from the following states and provinces: Colorado, Newfoundland, Quebec, Manitoba, Saskatchewan, Alberta and Yukon (Buckle *et al.*, 2001). In Asia it is restricted to a narrow belt along the Pacific coast (see Map 3). A new record from Paramushir Island is the southernmost point of distribution of this species in the Palaearctic.

The illustration of the epigyne given by Eskov & Marusik (1991: fig. 42) is incorrect. Therefore we provide new figures. While the females illustrated have the median plate of different sizes, no differences were found between males from North America and Siberia.

***Hilaira pelikena* Eskov, 1987** (Figs. 12–16, Map 3)

Hilaira pelikena Eskov, 1987: 1026, f. 5.1–4 (D♂).

Material examined: RUSSIA: *Chukotka*: Holotype ♂ (ZMMU), Chaun Bay, Chaun River mouth, 20–24 August 1986 (A. S. Ryabukhin); 1♂ (IBPN), same data.



Map 3: Distribution of *Hilaira canaliculata* (■ revised material, □ state records in Nearctic), *H. pelikena* (●) and *Pardosa podhorskii* (△, some Nearctic and Chukotka localities not shown).

Magadan Area: 1♀ (ZMUT), 80 km W of Magadan, Glukhoye Lake, coastal tundra, 3–22 July 1997 (S. Koponen). *Sakhalin Area*: 1♂ 1♀ (IBPN), Paramushir I., NE shore, Severo-Kurilsk env., 50°40'N, 156°06'E, 10 August–15 September 1996 (Y. M. Marusik); 1♀ (BMUW), Shumshu I., <SU-97-TWP-023>, 2 km S of Cape Pochtareva, 50.819°N, 156.489°E, 20 m, ex *Empetrum nigrum* litter, 8 August 1997 (T. W. Pietsch).

Comments: When this species was described, it was known from a single locality north of the Arctic Circle (68.823°N, 170.35°E). Our new records extend the known range by more than 18° to the south and over 20° to the west (see Map 3). Side by side comparisons of males from two distant populations did not allow us to find any morphological (shape and/or size) differences. As the female of this species was unknown and the figures of the male provided by Eskov (1987) were not very detailed, we provide illustrations of both sexes. The female has a characteristic epigyne with a distinct fovea and small median plate as in the *vexatrix* group (or *Arctilaira* Chamberlin, 1921), but with two pairs of lateral lobes instead of one (cf. figs. 4.3–4 in Eskov, 1987). The epigynes of the Kurile and Magadan specimens are slightly different. The shape of the same epigyne looks very different in various views; when seen from behind the basal lobes have distinct margins, while the apical lobes look like outgrowths.

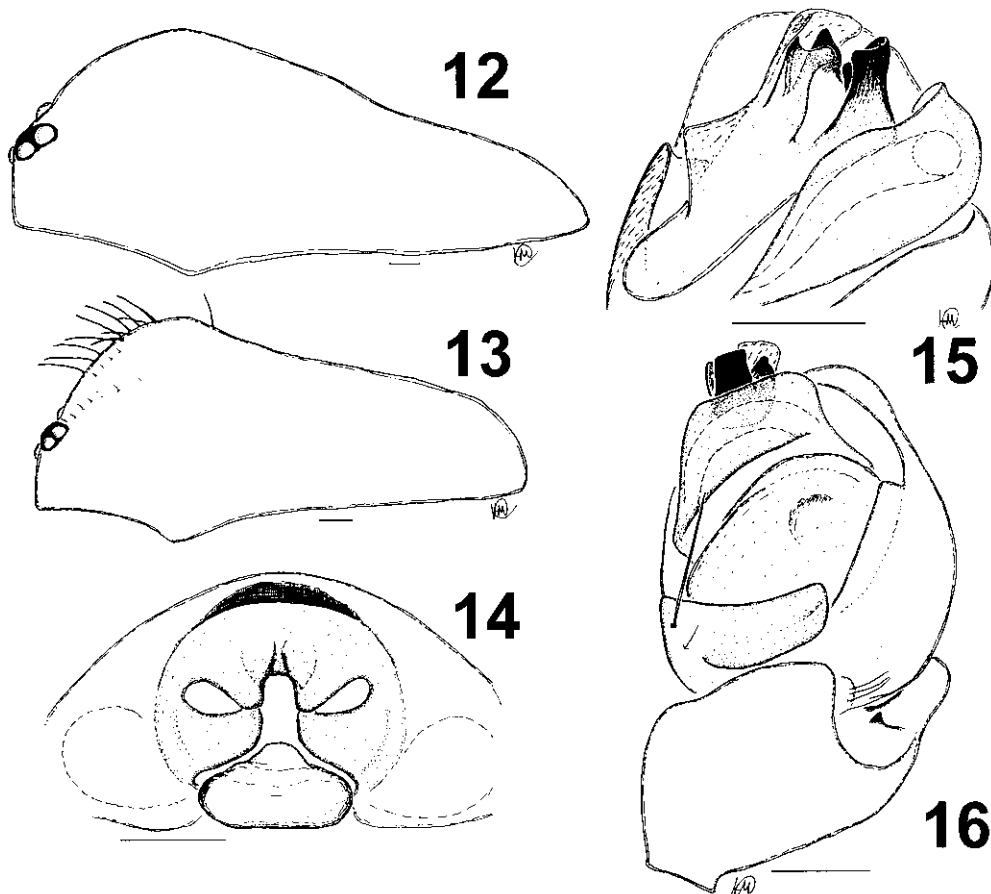
Family Lycosidae

Pardosa podhorskii (Kulczyński, 1907) (Map 3)

Material examined: RUSSIA: *Yakutia*: 1533♂♀ (IBPN, MMUM, ZMMU, ZMUT), Yana River downflow, environs of Kular village, 70°35'N, 134°34'E, July 1996 & 1997 (N. N. Vinokurov). *Magadan Area*: 1♂ 2♀ (IBPN), 70 km W of Magadan, Oira River bank, coastal tundra, summer 1996 (D. I. Berman); 1♀ (ZMUT), 80 km W of Magadan, Glukhoye Lake, coastal tundra, 3–22 July 1997 (S. Koponen). CANADA: *Yukon Territory*: 1♀ (IBPN) [55] Kluane Lake, Cultus Bay, 138°20'W, 61°11'N, 1200–1400 m, mountain ridge, under stones, 14 July 1993 (Y. M. Marusik).

Comments: This species was known to be distributed in the Palaearctic east of Chaun Bay. Its southernmost point in Asia was Anadyr Town (Marusik *et al.*, 1992a). In the Nearctic it has been found in Alaska, Yukon and Northwest Territories, and northern British Columbia, Manitoba and Ontario. Our record from Magadan extends its known range south by about 5° and west by 20°, while the Yakutia find extends the western limit of its distribution by more than 35°. Kluane Lake is the most southerly point of this species' distribution in the northwestern Nearctic (Alaska and Yukon) and the one closest to the Pacific Ocean.

Some of the Nearctic and Chukotka localities are not shown in Map 3.



Figs. 12–16: *Hilaira pelikena*. **12** Female carapace; **13** Male carapace; **14** Epigyne, view from behind; **15** Apical part of bulbus, ventral view; **16** Left male palp, retrolateral view. Specimens from Paramushir I. Scale lines=0.1 mm.

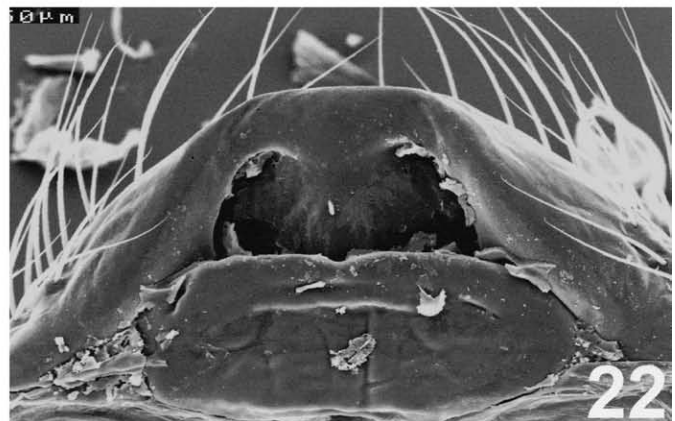
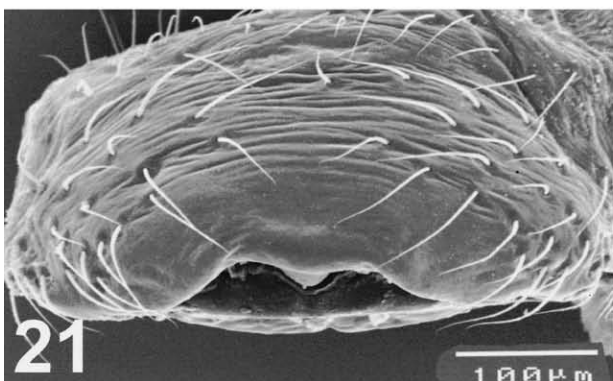
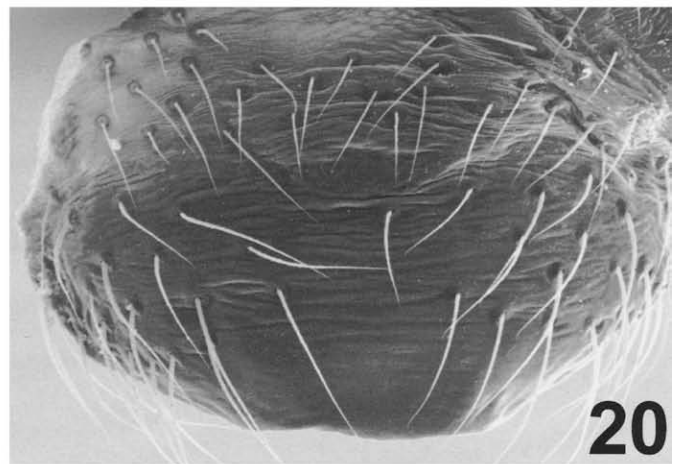
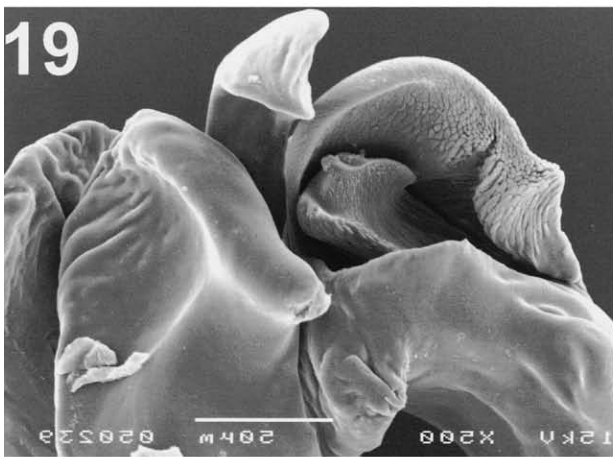
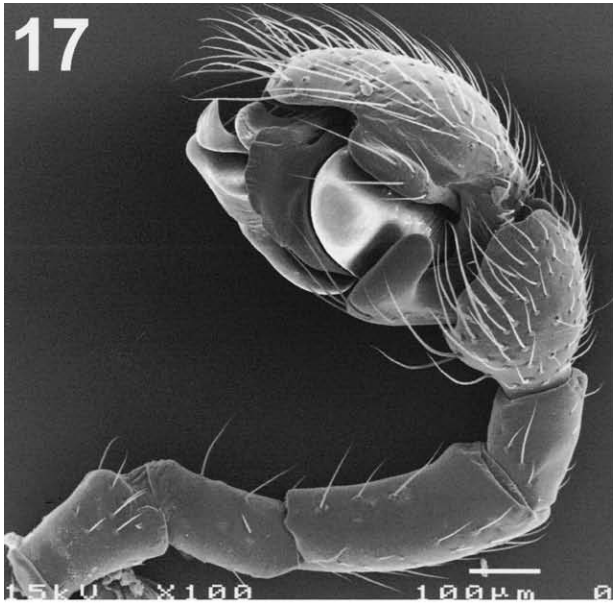
***Tricca insignita* (Thorell, 1872) (Map 4)**

T. insignita: Lugetti & Tongiorgi, 1966: 147, f. V.1–4.
Arctosa insignita: Dondale & Redner, 1983: 18, f. 42–45 (♂♀).
A. insignita: Dondale & Redner, 1990: 293, f. 475–478 (♂♀).
Tricca sp.: Marusik *et al.*, 1992a: 150.
T. insignita: Mikhailov, 1999: 19.

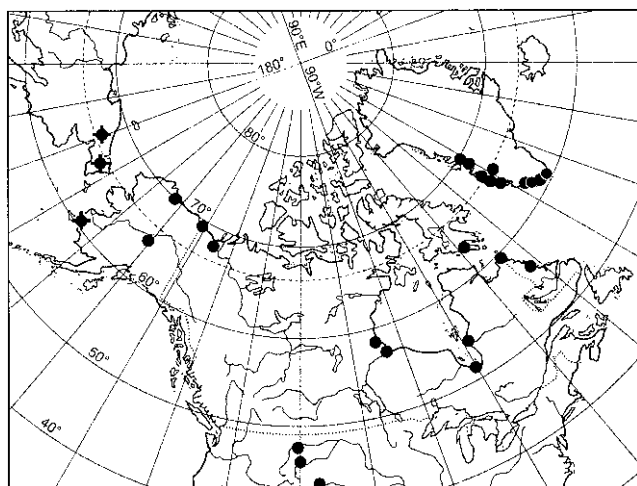
Material examined: RUSSIA: *Chukotka*: 2♂ 3♀ (IBPN), Amguema River, mouth of Khlopotlivy Creek, August 1989 (V. Pospekhov); 1♂ 3♀ (IBPN), middle flow of

Chigitun River, 66°22'N, 21 July–10 August 1991 (S. P. Bukhhalo). USA: *Alaska*: 1♀ (IBPN), 61°26'N, 165°27'W, Yukon-Kuskokvim Delta, downflow of Old Chevak River, summer 1993 (Y. A. Kretschmar).

Comments: Until recently this species was known only from the New World (USA, Canada, Alaska, Greenland) (Platnick, 2000). While *T. insignita* is now known to occur in Far Eastern Asia, nevertheless it remains restricted to the Western Hemisphere as the two records from Chukotka lie east of 180° longitude. As all



Figs. 17–22: Copulatory organs of *Hilaira canaliculata*. **17** Left palp, retrolateral view; **18** Bulbus, prolateral view; **19** Apical part of embolic division; **20–22** Epigyne, ventral, ventro-posterior and posterior views respectively.



Map 4: Distribution of *Tricca insignita*: ●=localities recorded by Dondale & Redner (1990); ◆=new records.

records are restricted to the tundra zone and high mountains (Colorado) its range can be described as Chukotkan-Transnearctic arcto-alpine.

Family Thomisidae

Ozyptila trux (Blackwall, 1846)

Material examined: RUSSIA: *Magadan Area*: 4♂ 2♀ (IBPN), 29 km N of Magadan, Snow Valley village, Dukcha River valley (c. 151°E, 59°43'N), summer 2000 (S. P. Bukhhalo).

Comments: This species has been recorded from the Magadan Area with a question mark (Marusik *et al.*, 1992a) because identification was based on a single female. Recently several males and females were found at the same locality. The most recent collection is listed.

This species has a Palaearctic (–E Nearctic) boreo-nemoral disjunctive range and occurs from Europe eastward to the North Kurile Islands (Marusik *et al.*, 1992b) and north to Polar Ural (Esyunin & Efimik, 1996), middle Yenisei (c. 62°N) and north Cisokhotia (c. 60°N) (Marusik *et al.*, 2000). In the Nearctic a single female has been recorded from Quebec (Dondale & Redner, 1975) and it seems this species was introduced to North America.

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***Mashonarus guttatus*, gen. and sp. n., the second termitivorous jumping spider from Africa (Araneae: Salticidae)**

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Summary

A new jumping spider from Africa, preying on the termite *Odontotermes transvaalensis* (Sjöstedt), is described, along with data on its life cycle and behaviour. A comparison is made with another termitivorous salticid, *Microheros termitophagus* Wesółowska & Cumming, which feeds on the same species of termite in Zimbabwe.

Introduction

Termite-hunting spiders are not uncommon (e.g. Dean, 1988; Jocqué & Dippenaar-Schoeman, 1992; Dippenaar-Schoeman *et al.*, 1996), yet the first description of a salticid specialised in catching such prey, from Zimbabwe and South Africa, was made only recently (Wesółowska & Cumming, 1999). Here we describe another termitivorous salticid species, *Mashonarus guttatus*, gen. and sp. n., preying on *Odontotermes transvaalensis* (Sjöstedt) in southern Africa. We present data on its habitat, life cycle and behaviour, and compare them with those of the previously described termitophagous salticid, *Microheros termitophagus* Wesółowska & Cumming, 1999.

Material and methods

The material that forms the basis of this paper is deposited in the following collections: MRAC=Musée Royal de l'Afrique Centrale, Tervuren; SMN=State Museum of Namibia, Windhoek; CAS=California Academy of Sciences, San Francisco; NMZ=National Museum (Natural History) of Zimbabwe, Bulawayo; PPRI=Plant Protection Research Institute, Pretoria; MNH=Museum of Natural History, Wrocław University, Wrocław.

Abbreviations used in the text: ap=apical, d=dorsal, Fm=femur, Mt=metatarsus, pl=prolateral, Pt=patella, rl=retrolateral, Tb=tibia, v=ventral. Chaetotaxy is in accordance with the system adopted by Ono (1988). Measurements are given in millimetres. The sequence of leg segments in the measurement data is: femur + patella + tibia + metatarsus + tarsus.

Field observations: *Mashonarus guttatus* was recorded between 1992 and 1994, as part of a study on the relationship between the termite *O. transvaalensis* and the invertebrates interacting with them on the open chimneys of their mounds (Cumming, 1993, 1995, 1996). Between 1998 and 2000 the focus changed to a broad study of the 38 species of salticids (including *M. guttatus*) occurring in a 0.6 ha garden in Harare, Zimbabwe (Cumming & Wesółowska, 2000). The two sets of data complement each other. A total of 94 field observations was recorded. For taking measurements, captive living spiders were held in glass vials above graph paper, then returned to the field.

Genus *Mashonarus*, new genus

Type species: *Mashonarus guttatus*, n. sp.

Etymology: The generic name is derived from Mashonaland, a province of Zimbabwe, *terra typica* for the type species of the genus. Gender masculine.