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New species of the family Linyphiidae from South Siberia, Russia (Arachnida: Araneae)

With 41 figures

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Abstract. Six new linyphiid species are described from South Siberia: five from Altai: *Stemonyphantes altaicus* sp. n., *Incestophantes altaicus* sp. n., *Tenuiphantes suborientalis* sp. n., *Bolyphantes distichoides* sp. n., *Mughiphantes sobrioides* sp. n., and one species e. g. *Mughiphantes logunovi* sp. n. from Tuva.

Introduction

In their extensive inventory of the Altai spider fauna, MARUSIK, HIPPA & KOPONEN (1996) summarized almost all the arachnological data so far gained about this mountain country and provided a list of 96 species of the Linyphiidae, of which 5 were described as new to science. New spider material collected by Drs. A. & R. DUDKO and V. ZINCHENKO (Novosibirsk) from the Altai in 1996–97 and kindly placed at my disposal by Dr. D. LOGUNOV (Novosibirsk) allowed me to reveal a dozen new linyphiid species, with six of them being treated below. One paratype was additionally collected by Dr. D. LOGUNOV from the West Sayan Mts (Krasnoyarsk Territory, Siberia).

In addition, one species was erroneously mentioned in Tuva (South Siberia) by ESKOV (1992), ESKOV & MARUSIK (1992) and LOGUNOV, MARUSIK & KOPONEN (1998) as *Parawubanoides marusiki* (TANASEVITCH, 1987) have been described here as a new.

Abbreviations used in the text and figures: PMA – posterior median eyes, Fe – femur, Ti – tibia, Mt – metatarsus, TA – terminal apophysis, L – lamella characteristica, E – embolus, T – thumb, PRS – proscapus (= proscape), PS – pseudoscape, PMP – posterior median plate, Tm I – position of the metatarsal trichobothrium. The chaetotaxy is given in the following formula: Ti I: 2-1-1-0. This stands for: tibia I has two dorsal, one pro- and one retro-lateral spine, ventral spines absent (the apical spines are herewith disregarded). The sequence of leg segments in measurement data is as follows: femur + patella + tibia + metatarsus + tarsus. All measurements are in mm.

Type specimens are distributed among two museums: ZMN – the Zoological Museum of the Institute for Systematics and Ecology of Animals, Novosibirsk, Russia; ZMMU – the Zoological Museum of the Moscow State University, Moscow, Russia.

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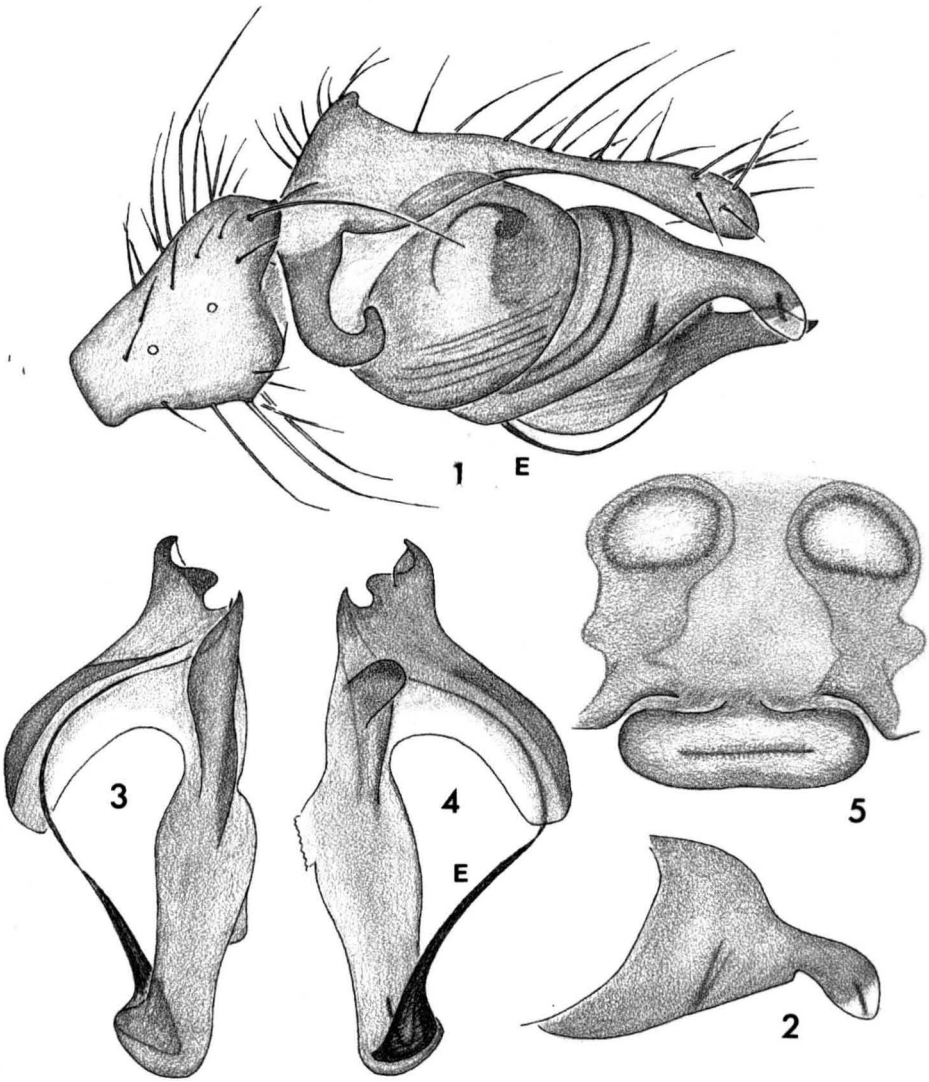


Figs 1–5: Details of the secondary genital organs of *Stemonyphantes altaicus* sp. n., male holotype and female paratype: 1 – right palp, 2 – tegular apophysis, 3, 4 – embolic division, 5 – epigyne ventrally.

Description of new species

***Stemonyphantes altaicus* sp. n.** (Figs 1–5)

M a t e r i a l . Holotype male (ZMN), Altai, Listvyaga Mt. Ridge, environment of Tesninsky Belok Mt., 2000–2300 m a.s.l., alpine belt, 20.VII.1997, leg. R. DUDKO & V. ZINCHENKO. Paratype female (ZMN), together with holotype.

E t y m o l o g y . The specific name is an adjective referring to the terra typica.

Diagnosis. From the structure of the male palp, especially its small and spineless paracymbium, *S. altaicus* is related to both *S. solitudus* TANASEVITCH, 1994 from Turkmenistan and *S. curvipes* TANASEVITCH, 1989 from the North Tien-Shang Mts (Kirghizstan). From both species, as well as from other congeners of *Stemonyphantes*, the new species can readily be distinguished by the peculiar shape of the tegular apophysis (Fig. 2) and presence of a long process situated on the narrow "radical" part of the embolic division (Figs 3–4).

Description. Male: Total length – 4.65. Carapace 2.05 long, 1.55 wide, pale brown. Chelicerae 0.90 long, anterior margin with three teeth. Legs pale brown. Leg I 6.00 long (1.95+0.60+1.65+1.70+0.10), IV – 5.80 long (1.80+0.50+1.30+1.30+0.90). Chaetotaxy. Fe I: 2-1-0-0, II–IV: 2-0-0-0. TmI – 0.38. Palp as in Figs 1–4. Paracymbium small, spineless. Tegular apophysis slightly turned down. The "radical" part of the embolic division narrow, with a long distal process inclined at the ca. 45° to the main axis. Abdomen 2.45 long, 1.40 wide, pale grey.

Female: Total length – 5.15. Carapace 2.25 long, 1.50 wide, red-brown. Chelicerae 0.60 long, anterior margin with four teeth. Leg I 6.70 long (1.90+0.65+1.65+1.60+0.90), IV – 7.20 long (2.00+0.65+1.85+1.80+0.90), red-brown. Chaetotaxy. Fe I: 2-1-0-0, II–IV: 2-0-0-0. Abdomen 3.25 long, 1.75 wide, almost white, with a poor visible grey median stripe. Epigyne as in Fig. 5.

Incestophantes altaicus sp. n. (Figs 6–17)

Material. Holotype male (ZMN), W Altai, Ivanovsky Mt. Ridge, foot of Rossypnoi Belok Mt., 1800 m a.s.l., *Picea* & *Larix* sparse forest, 1.VI.1996, leg. R. DUDKO. Paratype male (ZMMU), Ivanovsky Mt. Ridge, Gromotukha River, 1400–1600 m a.s.l., *Larix* sparse forest, 3–5.VI.1996, leg. R. DUDKO.

Etymology. The specific name is an adjective referring to the terra typica.

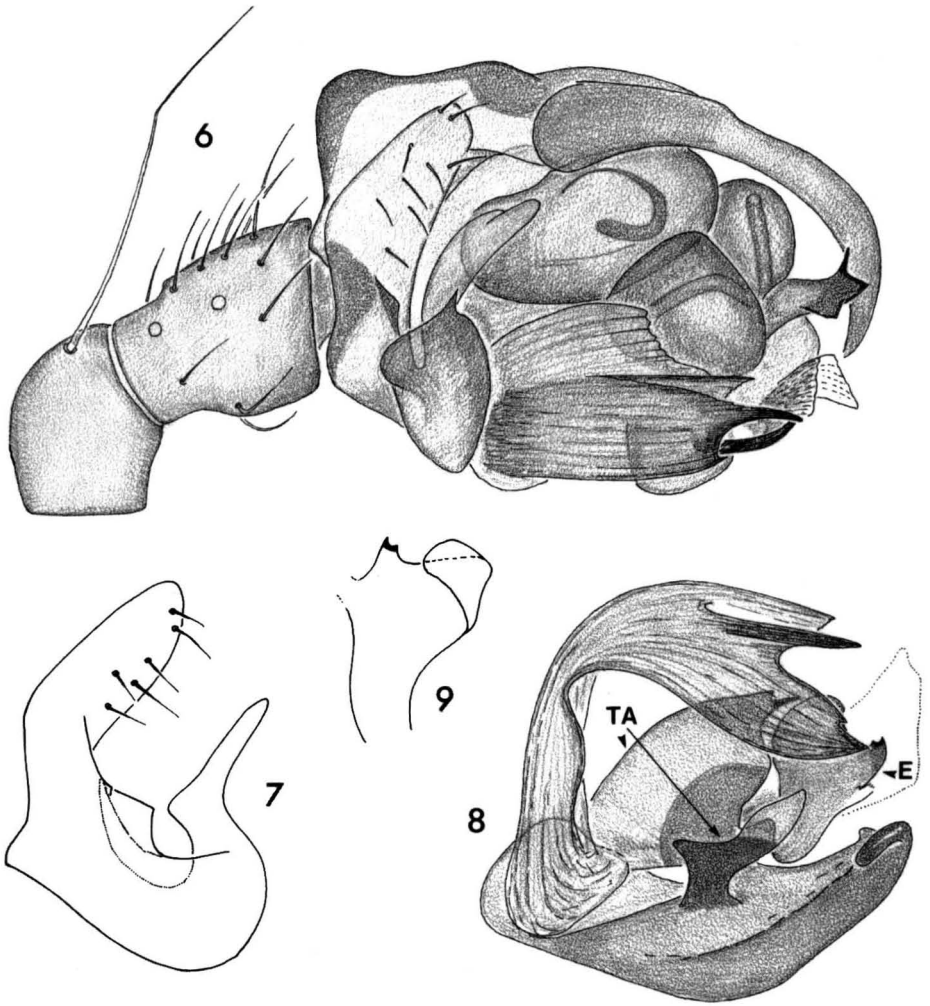
Diagnosis. It is difficult to refer a new species to any species group of *Incestophantes* TANASEVITCH, 1992 (sensu TANASEVITCH, 1996). Nevertheless, from the shape of the paracymbium and the simple structure of the terminal apophysis, *S. altaicus* seems to be closest to the congeners of the *kochiellus*-group, from which it can easily be separated by the peculiar shape of the wide lamella characteristica (Fig. 10), and the shape and arming of the paracymbium (Fig. 7).

Description. Male (female unknown): Total length – 3.00. Carapace 1.38 long, 1.05 wide, dark brown, with narrow dark margin. Chelicerae 0.60 long, anterior margin with two teeth. Legs pale brown without dark bands. Leg I 5.99 long (1.55+0.30+1.58+1.58+0.98), IV – 5.64 long (1.58+0.38+1.38+1.50+0.80). Chaetotaxy. Ti I: 2-1-1-3; II: 2-0-1-3(2), III–IV: 2-1-1-1; Mt I–IV: 1-0-0-0. TmI – 0.22. Palpal structure as in Figs 6–13. In the middle, paracymbium with a large tooth equipped with a small tooth at its base. Terminal apophysis relatively simple, consists of two parts. Lamella characteristica large and wide. Abdomen 1.75 long, 1.00 wide, dark grey, almost black.

Variability. Two examined male specimens of *S. altaicus* vary in small details of the distal part of the lamella characteristica, the shape of the suprategular apophysis tip, as well as in the size and shape of the small tooth situated at the base of the large paracymbial tooth (cf. Figs 10–13 & 14–17).

Tenuiphantes suborientalis sp. n. (Figs 18–23)

Material. Holotype male (ZMN), S Altai, S of Katunsky Mt. Ridge, 5 km SE of Rakhmanovskiye Klyuchi, 2100–2500 m a.s.l., alpine belt, 28.IX.1997, leg. R. DUDKO & V. ZINCHENKO.

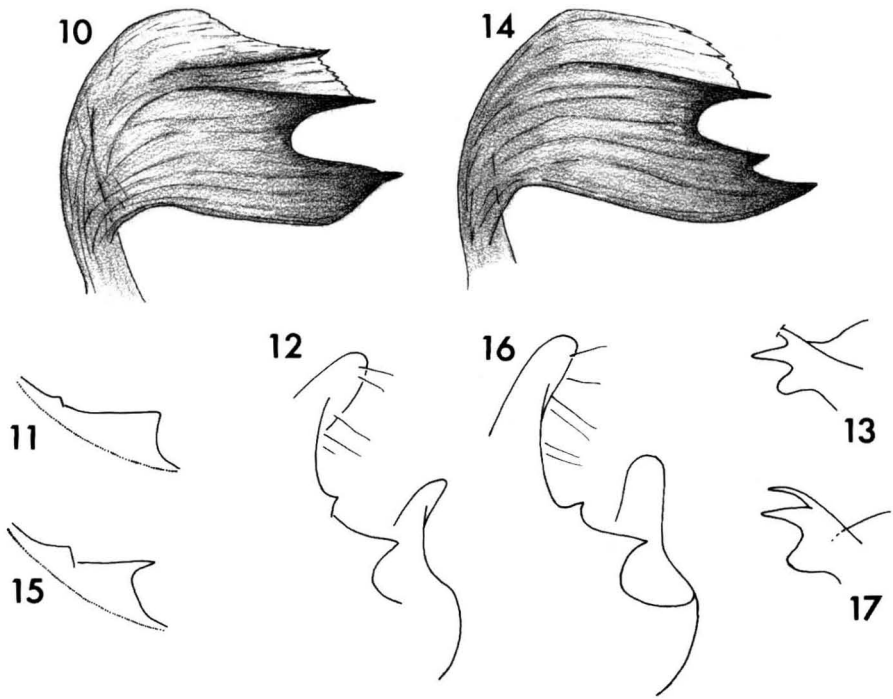


Figs 6–9: Palp details of *Incestophantes altaicus* sp. n., holotype: 6 – right palp, 7 – paracymbium, 8 – embolic division, 9 – embolus.

Paratype 1 females (ZMN), 2 females (ZMMU), SW Altai, Sarymsakty Mt. Ridge, Sarymsakty River Valley, 2500–2800 m a.s.l., 2.VII.1997, leg. R. DUDKO & V. ZINCHENKO; 1 female (ZMMU), SW Altai, Kurchyumsky Mt. Ridge, upper reaches of Topolyovka River, 2100–2200 m, subalpine, 4–5.VII.1997, leg. R. DUDKO & V. ZINCHENKO; 1 female (ZMN) Krasnoyarsk Territory, Ermakovo Distr., West Sayany Mts, 8–10 km S of Oisky Lake, Oisky Pass, 1700 m a.s.l., subalpine meadow, 27.VI.1990, leg. D. LOGUNOV.

E t y m o l o g y . The species name is an adjective derived from a Latin word meaning southeastern.

D i a g n o s i s . This species is well diagnosed by the shape of the lamella characteristica (Fig. 18), which is usually vague in the members of *Tenuiphantes* SAARISTO et TANASEVITCH, 1996, as well as by the wide and short proscapus (Fig. 21). The lamella characteristica of *T. suborientalis*

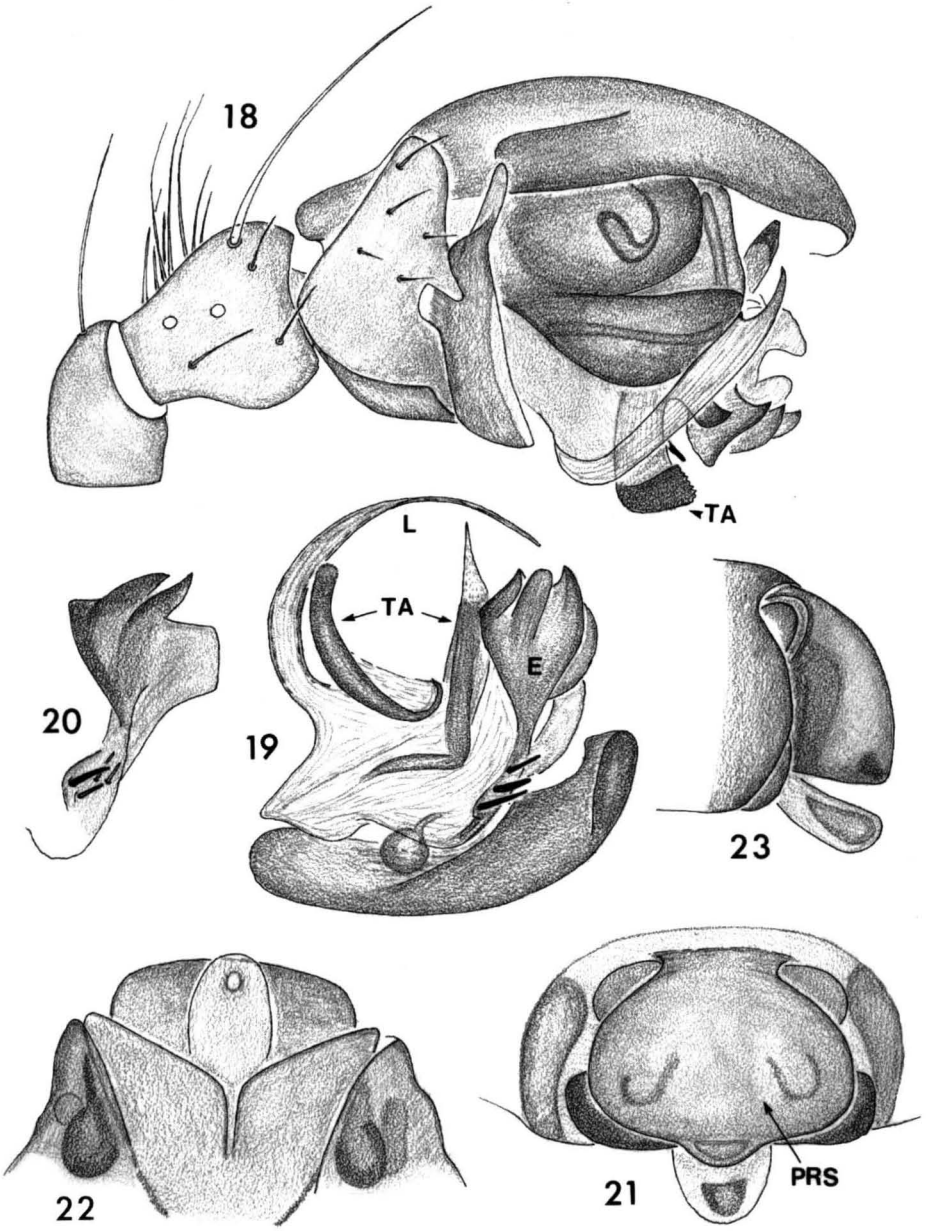


Figs 10–17: Palp details of *Incestophantes altaicus* sp. n. (10–13: holotype, 14–17: paratype): 10, 14 – lamella characteristica, 11, 15 – paracymbial teeth, 12, 16 – paracymbium, 13, 17 – suprategular apophysis.

is quite unusual and represents a long narrow stripe sharpened apically (Fig. 18), although most members of *Tenuiphantes* are generally characterized by the S-shaped lamella characteristica. By the shape of the proscape, the new species is most similar to *T. flavipes* (BLACKWALL, 1854), but differs in having the noticeably shorter proscape (Fig. 21) and the posterior median plate being divided into two parts (Fig. 22). The male of *T. suborientalis* sp. n. is clearly distinguishable from *T. flavipes* by the absence of the proximal tooth of the paracymbium, presence of several long teeth at the embolic base (Fig. 20), and the shape of the lamella characteristica (Fig. 18).

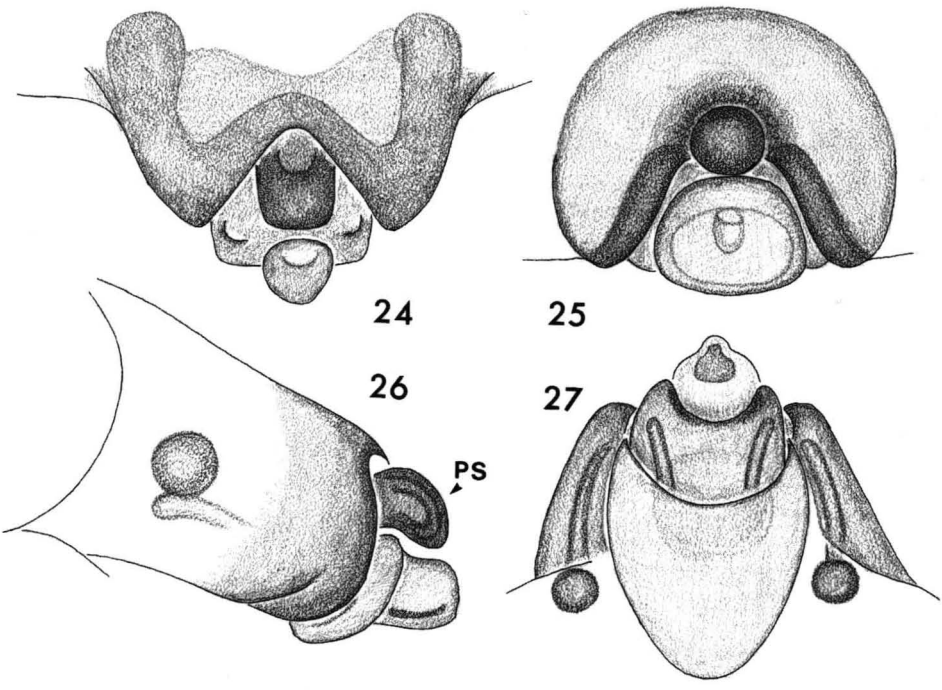
D e s c r i p t i o n . Male. Total length – 2.23. Carapace 0.98 long, 0.75 wide, greyish brown. PMA separated by their diameter. Chelicerae 0.38 long. Legs pale brown, without median bands. Leg I 5.01 long (1.25+0.30+1.33+1.30+0.83), IV – 4.76 long (1.30+0.28+1.20+1.23+0.75). Chaetotaxy. Ti I: 2-1-1-0, II: 2-0-1-0, III–IV: 2-0-0-0; Mt I–IV: 1-0-0-0. Tm I – 0.20. Palp (Figs 18–20): Paracymbium toothless. Lamella characteristica as a long narrow stripe sharpened apically. Terminal apophysis complex, embolus relatively large, with four long basal teeth. Abdomen 1.30 long, 0.85 wide. Dorsum dark grey, with poorly visible transverse coil stripes at the posterior half of abdomen.

F e m a l e . Total length – 2.55. Carapace 1.05 long, 0.85 wide, greyish-brown. PMA separated by their diameter. Chelicerae 0.43 long. Leg I 5.03 long (1.33+0.30+1.35+1.25+0.80), IV – 4.81 long (1.38+0.30+1.20+1.23+0.70). Tm I – 0.21. Abdomen 1.68 long, 1.13 wide. Dorsal pale abdominal pattern clearer than in males. Epigyne (Figs 21–23): Proscapus short and wide; scape



Figs 18–23: Details of the secondary genital organs of *Tenuiphantes suborientalis* sp. n., paratypes: 18 – right palp, 19 – embolic division, 20 – embolus, 21–23 – epigyne (21 – ventrally, 22 – dorsally, 23 – laterally).

in the middle with lateral outgrowths clearly seen in the front view. Posterior median plate wide, with a deep narrow median notch dividing plate into two parts. Body and leg coloration, chaetotaxy as in male.



Figs 24–27: Epigyne of *Bolyphantes distichoides* sp. n., paratype: 24 – ventrally, 25 – frontally, 26 – laterally, 27 – dorsally.

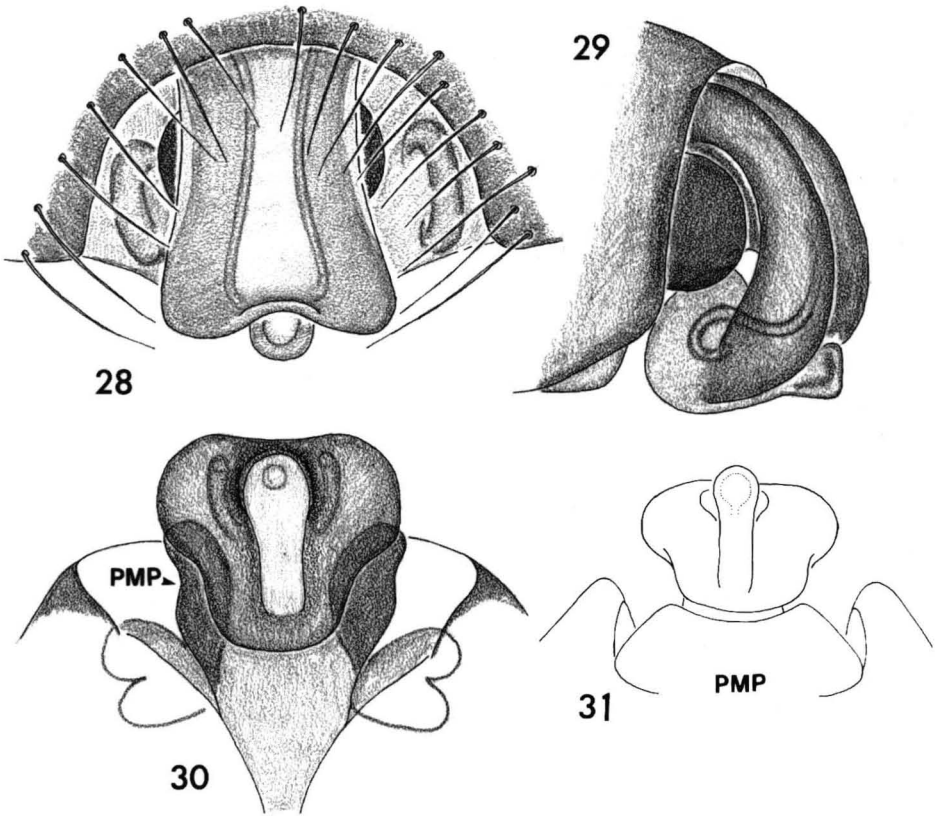
***Bolyphantes distichoides* sp. n.** (Figs 24–27)

Material. Holotype female (ZMN), W Altai, ca. 10 km S of Leninogorsk, 1700 m a.s.l., spring in *Pinus* & *Larix* forest, 30–31.V.1996, leg. R. DUDKO. Paratype female (ZMMU), together with holotype.

Etymology. The specific name is an adjective referring to the affinity of the new species to *Bolyphantes distichus* (TANASEVITCH, 1986).

Diagnosis. The species is most closely related to Siberian *Bolyphantes distichus* (TANASEVITCH, 1986), but can be readily distinguished by the long outgrowth of the epigynal base having a deep dorsal notch as shown in Fig. 24.

Description. Female (male unknown): Total length – 3.38. Carapace 1.25 long, 1.03 wide, brown with darker margin. Chelicerae 0.58 long, anterior margin with three teeth. Legs brown without dark bands. Leg I 5.38 long (1.45+0.40+1.30+1.33+0.90), IV – 5.14 long (1.50+0.35+1.23+1.28+0.78). Chaetotaxy. Ti I–III: 2-1-1-2, IV: 2-1-1-1; Mt I–III: 1-1-0-0, IV: 1-1-0-0(1). Tm I – 0.23. Abdomen 2.43 long, 1.53 wide. Dorsum pale, with a dark median stripe flanked by paramedian spots connected to it with thin bands. Epigyne (Figs 24–27): with a long basal outgrowth having a deep dorsal notch. Pseudoscape heavily sclerotized and distally turned slightly downwards.



Figs 28–31: Epigyne of *Mughiphantes sobrioides* sp. n., holotype (28–30) and *M. sobrius* (THORELL, 1872) from Herald Island, Chyukot Sea (31): 28 – ventrally, 29 – laterally, 30, 31 – dorsally.

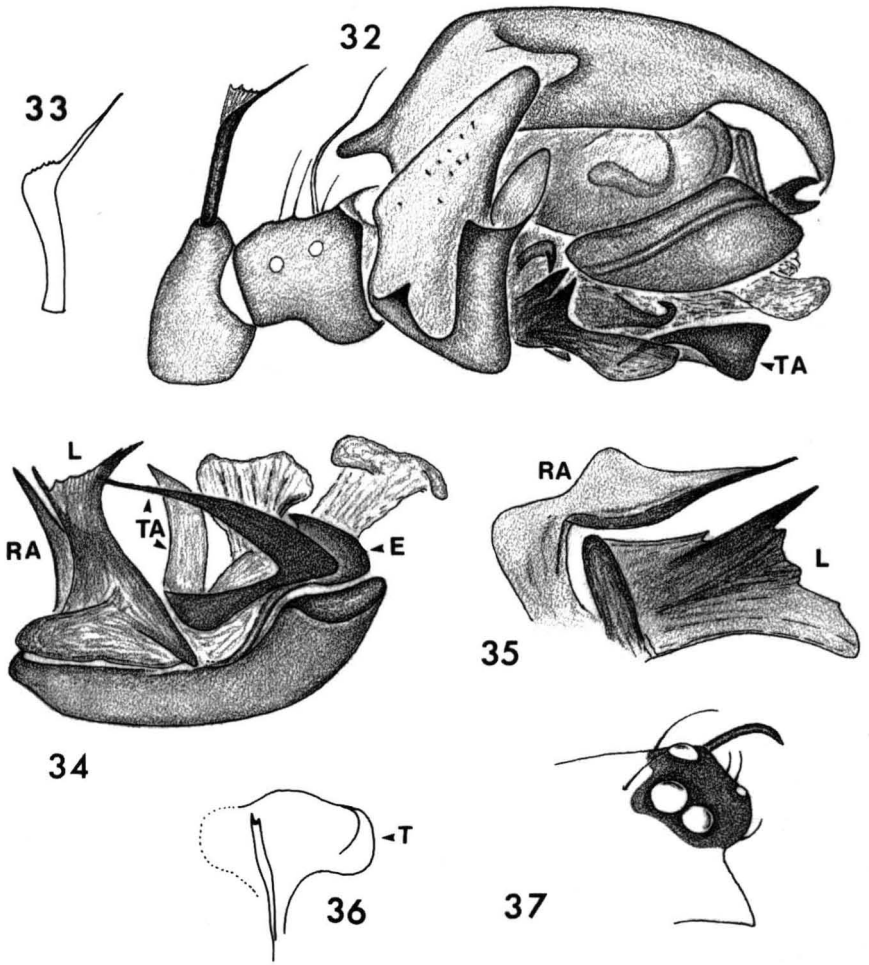
***Mughiphantes* (*Whymperiphantes*) *sobrioides* sp. n.** (Figs 28–30)

Material. Holotype female (ZMN), SE Altai, Chikhachyova Mt. Ridge, 3 km SE of Chiornaya Mt., 2500–2800 m a.s.l., mountain tundra, 10–11.VII.1996, leg. A. & R. DUDKO.

Etymology. The specific name is an adjective referring to the affinity of the new species to *M. sobrius* (THORELL, 1872).

Diagnosis. The species is most closely related to Siberian *Mughiphantes sobrius* (THORELL, 1872), but can be readily distinguished by the hypertrophied and heavily sclerotized lateral lobes of the posterior median plate of the epigyne (cp. Figs 30 & 31).

Description. Female (male unknown). Total length – 2.95. Carapace 1.23 long, 0.90 wide, pale brown. Chelicerae 0.45 long, anterior margin with three teeth. Legs pale brown without dark bands. Leg I 4.52 long (1.18+0.38+1.13+1.08+0.75), IV – 4.51 long (1.25+0.30+1.13+1.13+0.70). Chaetotaxy. Ti I: 2-1-1-1, II: 2-0-1-1, III: ?, IV: 2-0-1-1; Mt I–III: 1-0-0-0, IV: ?. Tm I – 0.24. Abdomen 1.95 long, 1.20 wide. Dorsum pale, with a pair of grey longitudinal curved stripes transforming into a transverse band at the distal half of abdomen. Epigyne as in Figs 28–30.



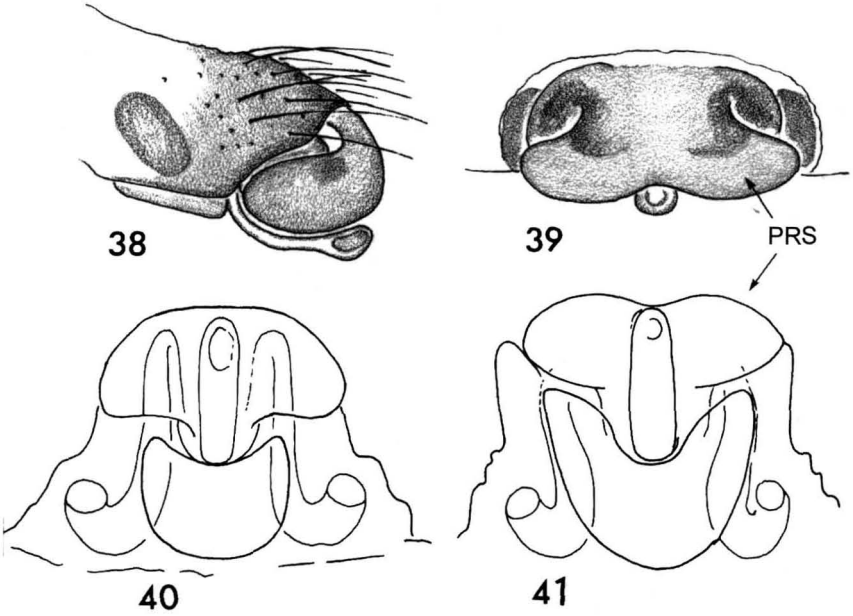
Figs 32–37: Male carapace and palp details of *Mughiphantes logunovi* sp. n., paratype: 32 – left palp, 33 – patellar setae, 34 – embolic division, 35 – lamella characteristica & radical apophysis, 36 – embolus, 37 – cephalic part of carapace.

***Mughiphantes* (*Mughiphantes*) *logunovi* sp. n.** (Figs 32–40)

1992: *Parawubanoides marusiki* non sensu TANASEVITCH, 1987. – ESKOV & MARUSIK, Arthropoda Selecta **1** (2): 79.
1992: *Parawubanoides marusiki* non sensu TANASEVITCH, 1987. – ESKOV & MARUSIK, Arthropoda Selecta **1** (1): 33.
1998: *Parawubanoides marusiki* non sensu TANASEVITCH, 1987. – LOGUNOV, MARUSIK & KOPONEN, Ber. nat.-med. Verein Innsbruck **85**: 136.

M a t e r i a l . Holotype male (ZMN), Tuva, 2–3 km NW of Kyzyl, riverside *Populus* forest, 600–700 m, 07.VI.1983, leg. D. LOGUNOV. Paratypes: 2 females (ZMN), 2 females (ZMMU), same date and locality, together with holotype.

E t y m o l o g y . The species honors of the well-known Russian arachnologist, Dr. Dmitry LOGUNOV, the collector of this species.



Figs 38–41: Epigyne of *Mughiphantes logunovi* sp. n., paratype (38–40) and *M. marusiki* (TANASEVITCH, 1987) from Magadan Area (41): 38 – laterally, 39 – ventrally, 40–41 – dorsally.

D i a g n o s i s . The new species is very closely related to *M. marusiki* (TANASEVITCH, 1987), but is well distinguishable by the presence of a short and narrow process at the base of the cymbium, the shape and position of the tooth of the paracymbium, as well as by the shallow concavity of the posterior median plate of the epigyne (cf. Figs 40 & 41).

D e s c r i p t i o n . Male. Total length 2.00. Carapace 1.00 long, 0.75 wide, pale brown. Cephalic part with a strong seta (Fig. 37). PMA separated by their diameter. Chelicerae 0.38 long. Legs pale brown without median bands. Leg I with a row of thin spines ventrally. Leg I 3.68 long (0.90+0.25+0.93+0.95+0.65), IV – 3.71 long (0.98+0.25+0.95+0.95+0.58). Chaetotaxy. Ti I: 2-1-1-0, II: 2-0-1-0, III–IV: 2-0-0-0; Mt I–IV: 1-0-0-0. Tm I – 0.24. Palp (Figs 32–36): Paracymbium with a tooth in middle part. Lamella characteristica short and wide, well-sclerotized. Radix with a radical apophysis (Figs 34,35). Terminal apophysis complex. Embolus proper very small, thumb relatively large, membranous (Fig. 36). Abdomen 1.15 long, 0.78 wide, dorsally pale with grey transverse stripes in posterior part.

F e m a l e . Total length – 2.00. Carapace 0.83 long, 0.68 wide. Chelicerae 0.38 long. Leg I 3.54 long (0.93+0.28+0.88+0.85+0.60), IV – 3.72 long (1.00+0.28+0.93+0.88+0.63). Tm I – 0.28. Abdomen 1.33 long, 0.88 wide. Epigyne (Figs 38–40): Proscape very short and wide, ancoriform. Stretcher well-developed, long and slender. PMP with a shallow and round concavity. Body and leg coloration and chaetotaxy as in male.

R e m a r k s . This Tuvan species has erroneously been referred to by ESKOV (1992), ESKOV & MARUSIK (1992) and LOGUNOV et al. (1998) as *Parawubanoides marusiki* (TANASEVITCH, 1987).

Acknowledgements

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