

## Review of the family Gnaphosidae in the Ural fauna (Aranei), 5. Genera *Micaria* Westring, 1851 and *Arboricaria* Bosmans, 2000

### Обзор семейства Gnaphosidae фауны Урала (Aranei), 5. Рода *Micaria* Westring, 1851 и *Arboricaria* Bosmans, 2000

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КЛЮЧЕВЫЕ СЛОВА: фауна, Урал, Gnaphosidae, *Micaria*, *Arboricaria*.

ABSTRACT. One species of the genus *Arboricaria* Bosmans, 2000 and 12 species of the genus *Micaria* Westring, 1851: *M. aenea* Thorell, 1871, *M. alpine* L.Koch, 1872, *M. dives* (Lucas, 1846), *M. formicaria* (Sundevall, 1832), *M. fulgens* (Walckenaer, 1802), *M. gulliae* Tuneva & Esyunin, 2003, *M. nivosa* L. Koch, 1866, *M. pallipes* (Lucas, 1846), *M. pulicaria* (Sundevall, 1832), *M. rossica* Thorell, 1875, *M. silesiaca* L. Koch, 1875 and *M. tripunctata* Holm, 1978, are recognized in the fauna of the Urals and reviewed in this paper. *Micaria dives* (Lucas, 1846) is a new record for the Urals.

РЕЗЮМЕ. Дается обзор 1 вида *Arboricaria* Bosmans, 2000 и 12 видов рода *Micaria* Westring, 1851 фауны Урала: *M. aenea* Thorell, 1871, *M. alpine* L. Koch, 1872, *M. dives* (Lucas, 1846), *M. formicaria* (Sundevall, 1832), *M. fulgens* (Walckenaer, 1802), *M. gulliae* Tuneva & Esyunin, 2003, *M. nivosa* L. Koch, 1866, *M. pallipes* (Lucas, 1846), *M. pulicaria* (Sundevall, 1832), *M. rossica* Thorell, 1875, *M. silesiaca* L. Koch, 1875 and *M. tripunctata* Holm, 1978. *Micaria dives* (Lucas, 1846) впервые указывается для фауны Урала.

#### Introduction

This paper is a continuation of previous investigations on the gnaphosid fauna of the Urals [Esyunin & Tuneva, 2002; Tuneva & Esyunin, 2002a,b]. The genus *Micaria* Westring, 1851 is diverse in the Palaearctic and Nearctic regions. However, existing collections in Russia generally include few specimens, probably because *Micaria* species are difficult to collect in the field. The global fauna of *Micaria* comprises 95 species [Platnick, 2005], 28 of which have been reported from the ex-USSR [Mikhailov, 1987; Marusik *et al.*, 2000].

The fauna of *Micaria* is relatively well known in Europe [Wunderlich, 1979; Mikhailov, 1987], Asia [Danilov, 1993, 1996; Marusik *et al.*, 2000] and North America [Platnick & Shadab 1988], but our knowledge

about the Ural fauna with regard to this genus remains insufficient, although some data are available in the catalogue by Esyunin & Efimik [1996]. Eight species of *Micaria*, except for *Arboricaria subopaca*, were hitherto reported from the Urals [Esyunin & Efimik, 1995; 1996]. According to present data, the Ural fauna includes at least 12 *Micaria* species.

Although Platnick [2005] disregards the validity of the genus *Arboricaria* (not even including it in synonymy), in my opinion, the independent status of this genus is fully justified and I therefore consider *Arboricaria* separately from *Micaria*.

The main aims of this paper are (1) to review the Ural species of *Arboricaria* and *Micaria*, (2) to re-describe some of the species on the basis on the Ural material, and (3) to provide a key for the Ural species.

This work is based on material collected by the author (TT) and my colleagues: Esyunin S.L. (SE), Ermakov A.I. (AE), Kozminykh V.O. (VK), Mazura N.S. (NM), Polyanin A.B. (AP) and others. The majority of the material is deposited in the collection of the Department of Zoology of the Perm State University (PSU). Some specimens were deposited in the Zoological Museum of the Moscow University (ZMUM).

The following abbreviations are used in the text: a — apical, d — dorsal, p — prolateral, r — retrolateral, v — ventral. The chaetotaxy uses the following formula: basal-medial-apical spines. For example, tibia I v1-2(1)-2(a), which means that tibia I has one basal, two (or one) medial and two apical ventral spines. All measurements are in mm. Species distribution follows the catalogue of Mikhailov [1997] and the synopsis of Marusik *et al.* [2000].

#### KEY TO SPECIES

1. Small, less than 3 mm (Figs 13–14) ..... 2
- Larger than 3 mm ..... 4
2. Body colour light (yellow to grey) ..... *M. gulliae*  
— Body colour dark (brown to dark brown) ..... 3
3. Leg colour: yellow with contrasting black femora .....  
..... *M. pallipes*  
— Leg colour: only femur I black in its basally; yellow-grey  
with two black spots distally (Fig. 33) ..... *M. dives*

4. Males ..... 5  
 — Females ..... 13
5. Cymbium with 3 apical spines (Figs 26, 72, 78) ..... 6  
 — Cymbium with 4 apical spines (Figs 43, 54, 82) ..... 8
6. Bulbus with a thick distal tegular projection. Embolus filiform (Fig. 73). Tibial apophysis short and wide (Fig. 74) ..... *M. rossica*  
 — Bulbus without a tegular extension ..... 7
7. Tibial apophysis long (longer than the tibial width) (Fig. 27) ..... *M. alpina*  
 — Tibial apophysis short, acerate (Fig. 79) ..... *M. silesiaca*
8. Palp with two tibial apophyses ..... 9  
 — Palp with a single tibial apophysis ..... 10
9. Palpal tibia equal to, or longer than cymbium (Fig. 36). Embolus hooked (Fig. 37). Median apophysis relatively long ..... *M. formicaria*  
 — Palpal tibia shorter than cymbium (Fig. 44). Embolus relatively straight, attenuate (Fig. 43). Median apophysis relatively short ..... *M. fulgens*
10. Tibial apophysis short, acerate ..... 11  
 — Tibial apophysis long (equal to tibial width) ..... 12
11. Embolus short, wide at base (Figs 63, 64) ..... *M. pulicaria*  
 — Embolus long, constricted apically (Fig. 82) ..... *M. tripunctata*
12. Median apophysis massive (Fig. 54) ..... *M. nivosa*  
 — Median apophysis minute (Fig. 22) ..... *M. aenea*
13. Epigyne with a median septum (Figs 67–69) ..... *M. rossica*  
 — Epigyne without a median septum ..... 14
14. Epigyne without a margin, but with epigynal pockets and copulatory openings (Fig. 75) ..... *M. silesiaca*  
 — Epigyne otherwise, but always with an epigynal margin ..... 15
15. Epigynal margin completely surrounds the depressed fossa (Figs 18, 24) ..... 16  
 — Epigyne with only an anterior epigynal margin ..... 17
16. Epigynal fossa triangular (Fig. 18) ..... *M. aenea*  
 — Epigynal fossa square (Fig. 24) ..... *M. alpina*
17. Epigyne with a conspicuous pair of transverse, curved copulatory openings (in addition to epigynal pockets) (Figs 50–51) ..... *M. nivosa*  
 — Epigyne with either copulatory openings or epigynal pockets (but never together) ..... 18
18. Epigynal pockets directed outwards (opened laterally) (Fig. 34) ..... *M. formicaria*  
 — Epigynal pockets directed inwards (opened medially) (Figs 39, 61, 80) ..... 19
19. Epigynal pockets situated midway between the anterior margin and the epigastric furrow (Fig. 39) ..... *M. fulgens*  
 — Epigynal pockets situated near the epigastric furrow (Figs 61, 80) ..... 20
20. Epigynal pockets clearly curved and widely separated (Fig. 80) ..... *M. tripunctata*  
 — Epigynal pockets more or less direct and connivent (Fig. 61) ..... *M. pulicaria*

## Survey of species

*Micaria* Westring, 1851

*Micaria aenea* Thorell, 1871

Figs 18–23; Map 1.

*Micaria aenea*: Wunderlich, 1980: 271, figs 5, 26a–d, 48a–b; Platnick & Shadab, 1988: 30, figs 66–69; Mikhailov & Marusik, 1995: 102, figs 33–34, 38–39.

MATERIAL. Middle Urals: 1 ♂ (PSU), Perm Area, Barda District, Sarashi, *Pinus* forest, pitfall-traps, 6.V–1.VIII.1991, VK;

1 ♀ (PSU), environs of Perm City, Verkhnyaya Kuriya, *Pinus* forest, pitfall-traps, 30.VI–11.VIII.1990, VK; 1 ♂ (PSU-2555), environs of Perm City, Kachka, meadow with braind of *Betula*, 2–13.VI.2001, SE; South Urals: 1 ♀ (PSU), Chelyabinsk Area, Troitsk District, Troitskii Reserve, birch wood-meadow, pitfall-traps, 4.VI.1992, P. Durmanov; 1 ♀ (PSU-2328), Chelyabinsk Area, Iremel Range, Tygynskoe Bog, 26.VII.1993, A.N. Alikin

DESCRIPTION. Male. Total length 3.60(3.55–3.65). Carapace 1.58(1.55–1.60) long, 1.23(1.15–1.30) wide, brown with white scales. Sternum colour as in carapace. Abdomen grey, with two median white spots (Fig. 2). Chelicerae brown, with 2 promarginal teeth and 1 small retromarginal tooth. Femur II 1.23(1.20–1.25) long. Leg femora brown to dark brown (femora I–II darker than femora III–IV), other leg segments yellow-brown. Palpal femur with one dorsomedial spine and one dorsodistal spine. Leg spination: femora I d1-0-1, p0-0-1; II d1-0-1, p0-0-1; III d1-0-1, p0-0-1, r0-0-1; IV d1-0-1; tibiae I v2-2-0; II v1-2-0; III p1-0-1, r1-0-1, v2-2-2(a); IV p1-0-1, r1-0-1, v2-2-2(a); metatarsi III p1-0-2, r0-1-2, v2-2-2(a); IV p1-0-2, r1-0-2, v2-2-2(a). Cymbium with 4 spines apically (Figs 20, 22). Tibial apophysis long (larger than tibial width) widened basally (Fig. 23). Median apophysis very small. Embolus big, acerate, with curved apex, constricted at about half its length (Fig. 22).

Female. Total length 4.15(3.55–4.60). Carapace 1.57(1.35–1.75) long, 1.35(1.20–1.50) wide. Body colour and cheliceral dentition as for male. Femur II 1.08(1.00–1.25) long. Leg spination: femora I d1-0-1, p0-0-1; II d1-0-1, p0-0-1; III d1-0-1, p0-0-1, r0-0-1; IV d1-0-1; tibiae I v2-2-0; II v1-2-0; III p1-0-1, r1-0-1, v2-2-2(a); IV p1-0-1, r1-0-1, v2-2-2(a); metatarsi I v2-0-0; II v1-0-0; III p1-0-2, r0-1-2, v2-2-2(a); IV p1-0-2, r1-0-2, v2-2-2(a). Epigyne with a deep fossa (Fig. 18). Epigynal margin completely surrounds the depressed fossa. Many females have an epigynal plug. Spermathecae fabiform (Fig. 19).

DIAGNOSIS. This distinctive species can be recognized by shape of the embolus and size of the median apophysis in males and by the epigynal margin completely surrounding the depressed triangular fossa in females.

DISTRIBUTION. Holarctic temperate range.

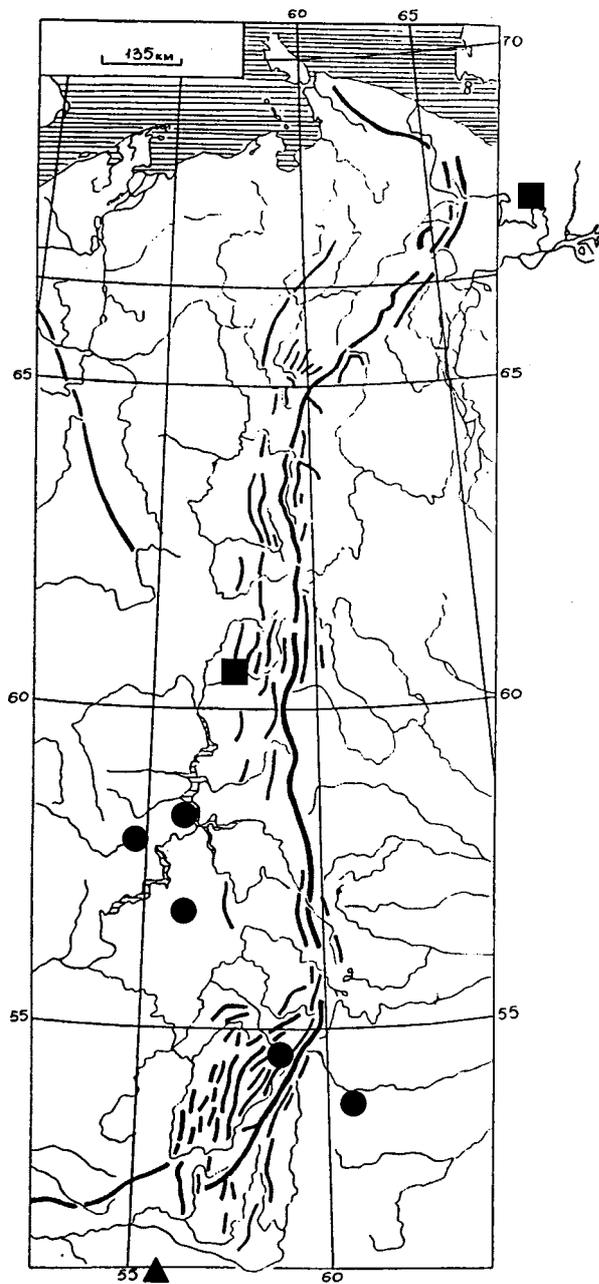
*Micaria alpina* L. Koch, 1872

Figs 24–27; Map 2.

*Micaria alpina*: Wunderlich, 1980: 281, figs 31a–d, 54a–d; Platnick & Shadab, 1988: 18 figs 30–33; Mikhailov & Marusik, 1991: 102, figs 29–30, 36.

MATERIAL. Cispolar Urals 1 ♂ (PSU), Tyumen Area, Yamalo-Nenets Autonomous Okrug, Berezovo District, Neroika Mountain, 700 m, dwarf *Betula* stand, willow-bed, pitfall-traps, 25.VII–3.VIII.1990, SE; North Urals: 4 ♂♂, 2 ♀♀ (PSU-428), Yekaterinburg Area, Ivdel' District, Denezhkin Kamen Range, Kulakovski Pass, tundra, 16–19.VI.1998, AE; 1 ♂ (PSU-1012), Yekaterinburg Area, Karpinsk District, Kosvinski Kamen Mountain, 1200–1300 m, mountain meadow, 10.VII.1996, AE; 2 ♂♂, 2 ♀♀ (PSU-1945), Perm Area, Krasnovishersk District, Kvarkush Range, tundra with *Juniperus*, pitfall-traps, 9–18.07.1996, NM.

DESCRIPTION. Male. Total length 3.98(3.65–4.35). Carapace 1.67(1.55–1.85) long, 1.17(1.05–1.30) wide, dark brown with white scales. Sternum colour as in carapace. Abdomen slightly constricted at middle, grey-brown, with two anterior white spots and with median transversally interrupted white line (Figs 9, 10). Femur II 1.15(1.00–1.25) long. Chelicerae brown, with 2 promarginal teeth and 1 small retromarginal tooth. Leg femora and tibiae dark yellow, tarsi and metatarsi yellow. Palpal femur without spines. Leg spination: femora I d1-0-0, p0-0-1; II d1-0-0, p0-0-1;

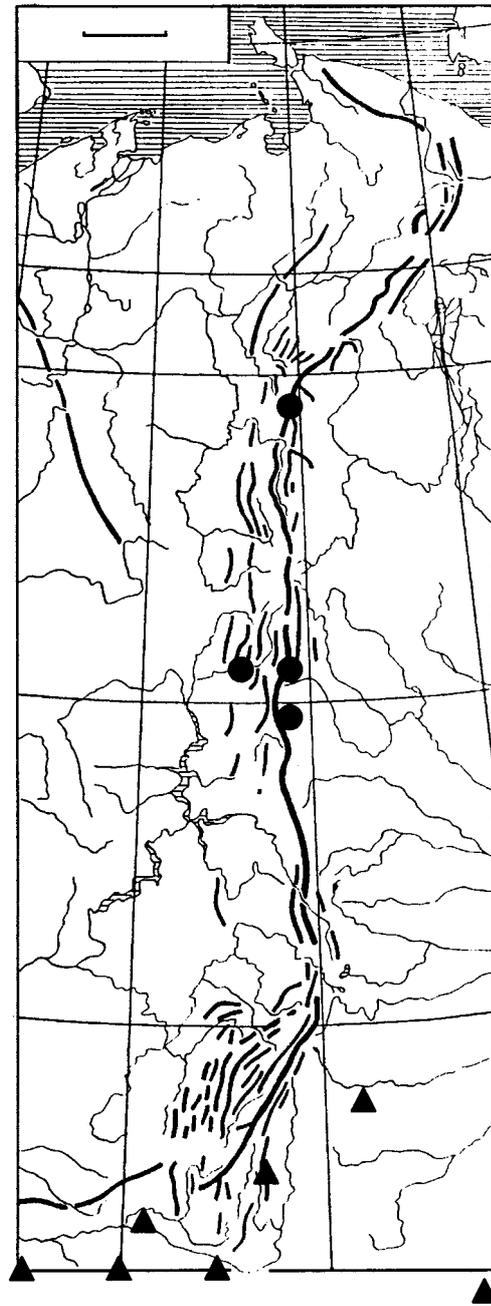


Map 1. The Urals, distribution of *Micaria aenea* (circles), *M. tripunctata* (squares) and *M. gulliae*, *M. dives*, *M. pallipes* (triangle).

Карта 1. Урал, распространение *Micaria aenea* (кружок), *M. tripunctata* (квадрат) и *M. gulliae*, *M. dives*, *M. pallipes* (треугольник).

III d1-0-0, p0-0-1, r0-1-0; IV d1-0-0; tibiae III p0-1-1, r0-0-1, v2-2(3)-2(3)(a); IV p0-1(0)-0, v2-2(3)-2(3)(a); metatarsi III p0-1-1(2), r0-1-1(2), v2(3)-2(3)-2(3)(a); IV numerous(a). Cymbium with 3 spines apically (Fig. 26). Tibial apophysis long (longer than tibial width) (Fig. 27). Median apophysis massive, widened at base. Embolus with long, thin apex (Fig. 26).

Female. Total length 4.46(4.15–4.90). Carapace 1.69 (1.60–1.75) long, 1.25(1.15–1.45) wide. Body colour, cheli-

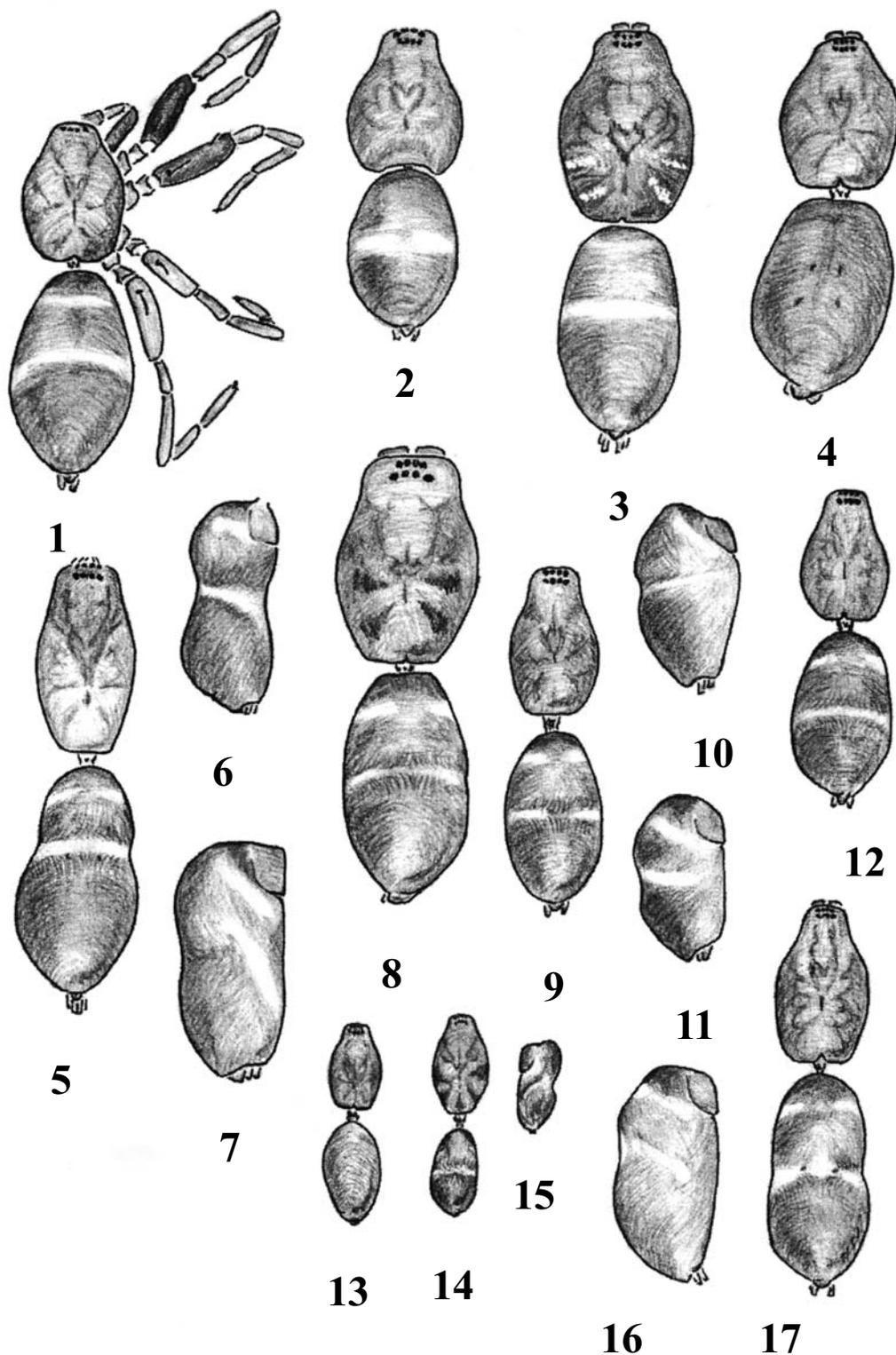


Map 2. The Urals, distribution of *Micaria alpina* (circles) and *M. rossica* (triangles).

Карта 2. Урал, распространение *Micaria alpina* (кружок) и *M. rossica* (треугольник).

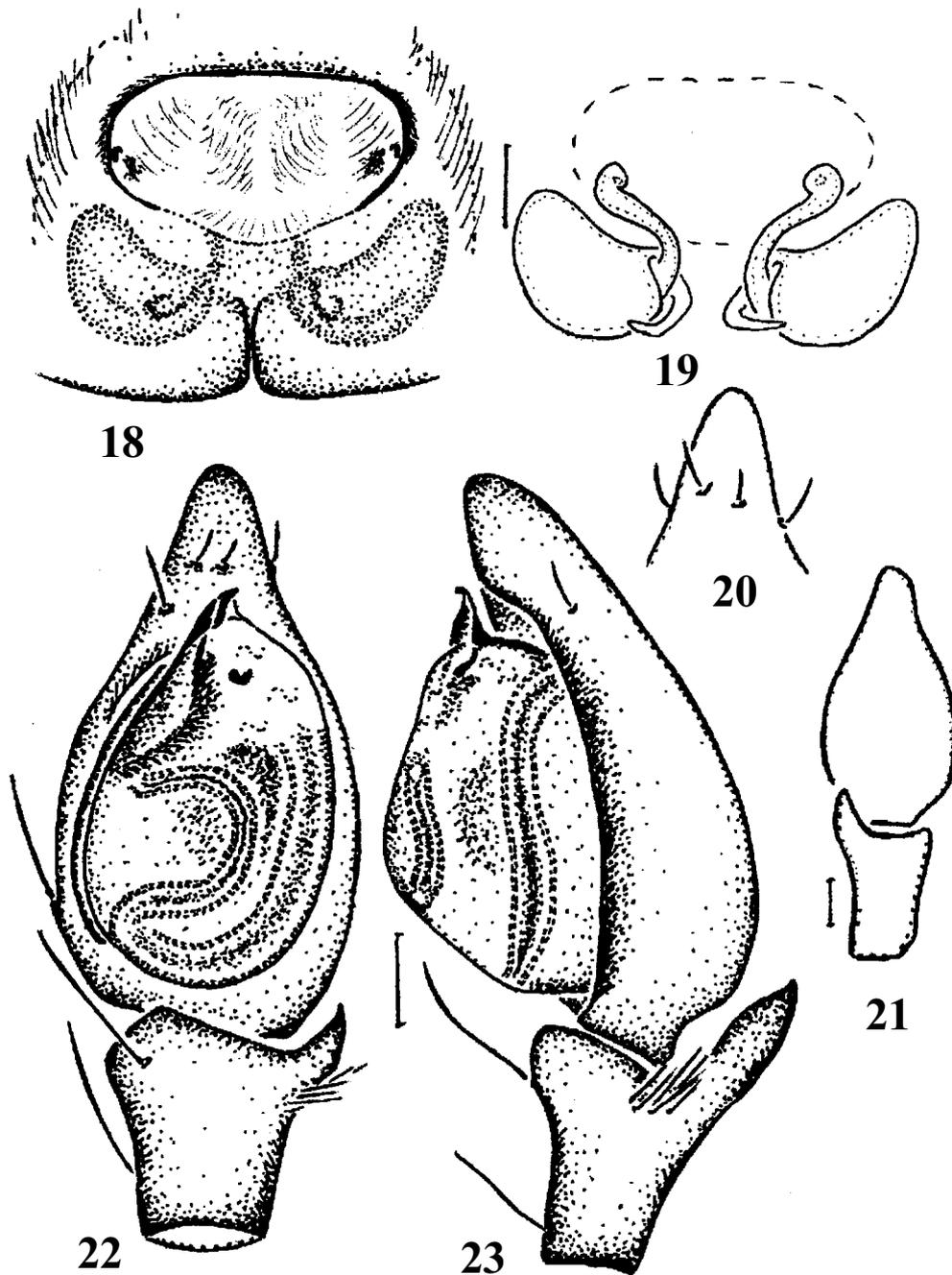
ceral dentition and leg spination as for male. Femur II 1.05 (1.00–1.10) long. Epigyne with a deep fossa, wider than long or almost square. Anterior epigynal margin heavily sclerotized (Fig. 24). Spermathecae relatively long and narrow, longer than fossa of epigyne (Fig. 25). Epigynal fossa surrounded anteriorly and laterally.

DIAGNOSIS. By the embolus expanded basally (appearing triangular) and the anterior epigynal margin surrounding the fossa anteriorly and laterally, this species is closest to the



Figs 1–17. Bodies of *Micaria* species: *M. pulicaria* (Sundevall, 1832) (1), *M. aenea* Thorell, 1871 (2), *M. nivosa* L.Koch, 1866 (3), *M. tripunctata* Holm, 1978 (4), *M. formicaria* (Sundevall, 1832) (5, 6), *M. fulgens* (Walckenaer, 1802) (7, 8), *M. alpina* L.Koch, 1872 (9, 10), *M. silesiaca* L.Koch, 1875 (11, 12), *M. pallipes* (Lucas, 1846) (13), *M. dives* (Lucas, 1846) (14, 15) and *M. rossica* Thorell, 1875 (16, 17): 1, 2, 3, 4, 5, 8, 9, 12, 13, 14, 17 — dorsal view; 6, 7, 10, 11, 15, 16 — lateral view. Scale 1 mm.

Рис. 1–17. Головогрудь и брюшко видов рода *Micaria*: *M. pulicaria* (Sundevall, 1832) (1), *M. aenea* Thorell, 1871 (2), *M. nivosa* L.Koch, 1866 (3), *M. tripunctata* Holm, 1978 (4), *M. formicaria* (Sundevall, 1832) (5, 6), *M. fulgens* (Walckenaer, 1802) (7, 8), *M. alpina* L.Koch, 1872 (9, 10), *M. silesiaca* L.Koch, 1875 (11, 12), *M. pallipes* (Lucas, 1846) (13), *M. dives* (Lucas, 1846) (14, 15) и *M. rossica* Thorell, 1875 (16, 17): 1, 2, 3, 4, 5, 8, 9, 12, 13, 14, 17 — вид сверху; 6, 7, 10, 11, 15, 16 — вид сбоку. Масштаб 1 мм.



Figs 18–23. *Micaria aenea* Thorell, 1871: 18 — epigyne; 19 — endogyne; 20 — cymbium, apical part; 21 — palp, dorsal view; 22 — palp, ventral view; 23 — palp, lateral view. Scale 0.1 mm.

Рис. 18–23. *Micaria aenea* Thorell, 1871: 18 — эпигина; 19 — эндогина; 20 — вершина цимбиума; 21 — палец сверху; 22 — палец снизу; 23 — палец сбоку. Масштаб 0,1 мм.

North American species *M. laticeps* Emerton, 1909 (figs 34–37 in Platnick & Shadab [1988]) and *M. punctata* Banks, 1896 (figs 38–41 in Platnick & Shadab [1988]) but differs by having a narrower embolic base in males and a much heavier anterior epigynal margin in females.

DISTRIBUTION. Holarctic boreo-hypoarctic range.

*Micaria dives* (Lucas, 1846)  
Figs 28–33; Map 1.

*Micaria dives*: Wunderlich, 1980: 297, figs 1, 34a–d, 58a–c; Bosmans & Blick, 2000: 446, figs 1–4; Levy, 2002: 123, figs 31–33.

**MATERIAL.** South Urals: 1 ♂ (PSU), Orenburg Area, Sol-Iletsk District, Chybynda, in desolate building, under stone, 11.VI.2003, TT; 1 ♂, same locality, chalk slope, 10.VI.2003, TT.

**OTHER MATERIAL.** Kazakhstan: 1 ♀ (ZMUM), Almaty Area, without locality data, 27.V.1988, collector unknown; 1 ♀ (ZMUM), Almaty Area, without locality data, 16.VI.1990, A.A. Zyuzin.

**DESCRIPTION.** Male. Total length 2.16(2.15–2.18). Carapace 1.09(1.08–1.10) long, 0.70 wide, brown. Sternum brown. Abdomen constricted at middle, dark grey, with two anterior white spots and a median white line (Figs 14, 15). Palpal femur brown, with one dorsomedial spine. Legs grey-yellow, femur I black basally and yellow-grey with two black spots distally (Fig. 33). Femur II 0.53 long. Leg spination: femora I d1-0-0, p0-0-1; tibiae I v2-2-0; III v0-2-2(a); IV v0-1-2(a); metatarsi I v2-0-0; III p0-0-1, v0-2-2(a); IV p0-0-1, v0-2-2(a). Palpal femur much widened (Fig. 30). Cymbium with 3 spines apically (Fig. 31). Tibial apophysis short, acerate (Fig. 32). Median apophysis small, situated apically on bulbus. Embolus narrow, acerate (Fig. 31).

Female. Total length 2.64(2.45–2.83). Carapace 1.11(1.08–1.15) long, 0.75 wide. Femur II 0.73 long. Body colour, cheliceral dentition and leg spination as for male. Anterior epigynal margin surrounds the epigynal fossa anteriorly. Copulatory openings direct, poorly visible (Fig. 28). Spermathecae fabiform, widely separated (Fig. 29).

**DIAGNOSIS.** The strongly widened palpal femur, the small embolus and median apophysis, the short tibial apophysis in males, shape of the epigynal fossa in females, as well as colour of femur I (black in basally and yellow-grey with two black spots distally) are the distinctive characters of *M. dives* and distinguish it from all other *Micaria* species.

**DISTRIBUTION.** Trans-Palaeartic nemoral. A new species record for the Urals.

#### *Micaria formicaria* (Sundevall, 1832)

Figs 34–38; Map 5.

*Micaria formicaria*: Wunderlich, 1980: 266, figs 4a–b, 23a–b, 45a–c.

**MATERIAL.** South Urals: 4 ♂♂ (PSU), Chelyabinsk Area, Troitsk District, Troitskii Reserve, steppe of *Stipa* and another herbs, pitfall-traps, 15.VII.1993, 10.VII.1994, SE; 1 ♂ (PSU), Chelyabinsk Area, Troitsk District, Ui River, steppe, pitfall-traps, 29.VI–01.VII.1998, T.I. Gridina; 1 ♂ (PSU), Bashkiria, Meleus District, Syrtlanovo, steppe of *Stipa* and other herbs, pitfall-traps, 08–12.VII.1990, V.E. Efimik; 1 ♂ (PSU), Chelyabinsk Area, Kartala District, Peschanka, steppe of *Artemisia*, *Stipa* and other herbs, pitfall-traps, 16–19.VII.2002, M.P. Zolotarev.

**OTHER MATERIAL.** 1 ♂, 1 ♀ (PSU), Lipetsk Area, environs of Lipetsk City, *Pinus* forest, VII.2004, SE; 1 ♀ (PSU), Evreiskaya Autonomous Area, near Birakan, 08.VII.1928, D.E. Kharitonov.

**DESCRIPTION.** Male. Total length 5.18(4.35–5.70). Carapace 2.39(2.15–2.50) long, 1.36(1.15–1.40) wide, brown-yellow, sometimes reddish brown. Sternum brown. Abdomen constricted at middle, grey with two anterior white spots and a median white line (Figs 5, 6). Chelicerae brown, with 2 promarginal teeth and 1 small retromarginal tooth. Leg colour: legs I–II yellow-brown, with femora half brown and half yellow, legs III–IV brown. Palpal femur brown, with a single dorsomedial spine. Femur II 1.46(1.35–1.50) long. Leg spination: femora I d1-0-0, p0-0-1; II d1-0-0, p0-0-1; III d1-0-0, p0-0-1, r0-0-1; IV d1-0-0, r0-0-1; tibiae I v1-1-1, II v1(0)-1-1, III p0-1-1, r0-1-1, v2-2-2(a); IV p0-1-1, r0-1-1, v2-2-2(a); metatarsi I, II v1-0-0; III p1-0-2, r0-1-1, v2-2-2(a); IV p1-0-2(1), r1-0-1, v2-2-2(a). Together with *M. fulgens*, this is one of the largest *Micaria* species. Palpal tibia elongate, equally long cymbium. Cymbium with 4 spines apically (Fig. 37). Palp with two small tibial apophyses, one

of them curved prolaterally, the other small and straight (Fig. 38). Embolus hooked (Fig. 37).

Female. Total length 6.40(6.30–6.50). Carapace 2.63(2.55–2.70) long, 1.48(1.40–1.55) wide. Femur II 1.58(1.45–1.70) long. Body colour, cheliceral dentition and leg spination as in the male. Spermathecae relatively long and narrow, reaching the anterior sclerotized ridge (Fig. 34). Insemination ducts widened anteriorly (Fig. 35). Spermathecae much longer than insemination ducts.

**DIAGNOSIS.** This species is closest to *M. coarctata* (Lucas, 1846) and *M. albovittata* (Lucas, 1846) (figs 13–22 and 1–7 in Levy [2002] respectively), but the male differs from that of *M. albovittata* by having two small tibial apophyses (only one in *M. albovittata*) and from that of *M. coarctata* by having a more attenuate embolus and a more gracile median apophysis.

The epigynes of *M. formicaria*, *M. coarctata* and *M. albovittata* are very similar, but females can be distinguished by their relatively long and narrow spermathecae, reaching the anterior sclerotized ridge in *M. formicaria* (it is rounded or fabiform, not reaching the anterior ridge in *M. coarctata* and *M. albovittata* respectively).

**DISTRIBUTION.** Trans-Palaeartic nemoral range.

#### *Micaria fulgens* (Walckenaer, 1802)

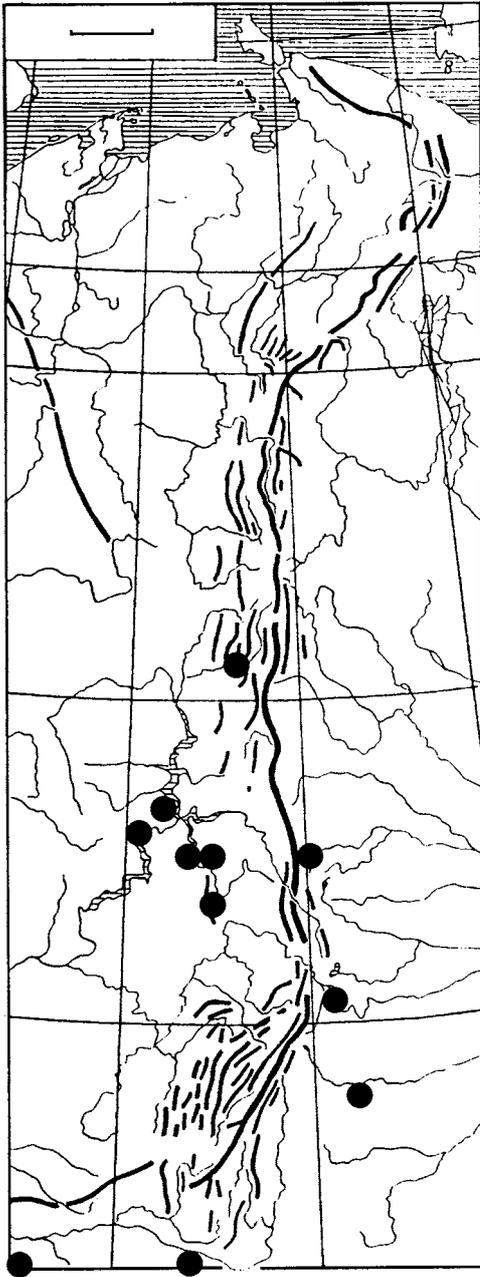
Figs 39–44; Map 6.

*Micaria fulgens*: Wunderlich, 1980: 259, figs 19a–d, 41a–b.

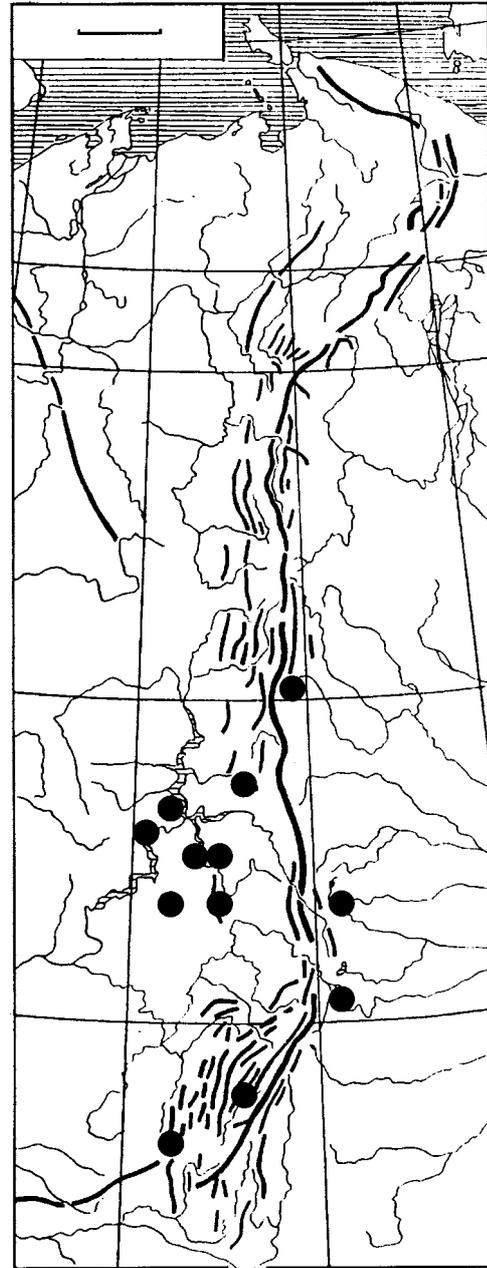
**MATERIAL.** Middle Urals: 6 ♂♂, 16 ♀♀ (PSU), Perm Area, Kungur District, Spasskaya Gora Reserve, steppe of *Stipa* and other herbs, pitfall-traps, 11.VI–22.VIII.1988, 27.V.1989, SE; 3 ♂♂, 1 ♀ (PSU), s.l., stony steppe, pitfall-traps, 30.V.1987, 17.VI.1989, SE; 8 ♂♂ (PSU), s.l., shrub steppe, pitfall-traps, 27.V.1989, SE; 1 ♂ (PSU), s.l., *Betula* forest, pitfall-traps, 27.V.1989, SE; 1 ♀ (PSU), Perm Area, Barda District, Sarashi, oak (*Quercus*) forest, pitfall-traps, 06.V–01.VI.1991, VK; 6 ♂♂ (PSU), same locality, *Pinus* forest, pitfall-traps, 06.V–01.VI.1991, VK; South Urals: 5 ♂♂ (PSU-2876), Orenburg Area, Kuvandyk District, Aituar, brook bank in steppe, pitfall-traps, 21–25.V.1996, NM; 1 ♂, 1 ♀ (PSU), Bashkiria, Burzyan District, Shulgan-Tash Reserve, *Spiraea* steppe, 30.VI–6.VII.1989, V.E. Efimik; 1 ♀ (PSU), Bashkiria, Meleus District, Syrtlanovo, steppe meadow, 20.VII.1990, V.E. Efimik; 1 ♂, 1 ♀ (PSU), Chelyabinsk Area, Ilimskii Reserve, dry meadow, 19.VI.1982, 7.VI.1986, AP.

**DESCRIPTION.** Male. Total length 4.34(3.70–4.95). Carapace 2.07(1.75–2.35) long, 1.48(1.30–1.60) wide and brown, with white scales and 4 dark spots (Fig. 8). Sternum yellow-brown. Abdomen grey, with two anterior white spots and with median transversally interrupted white line (Figs 7, 8). Chelicerae brown, with 2 promarginal teeth and 1 small retromarginal tooth. Femora and tibiae I–II dark yellow, femora and tibiae III–IV yellow-brown, other leg segments brown. Palpal femur with one dorsodistal spine. Femur II 1.43(1.25–1.70) long. Leg spination: femora I d1-0-0, p0-0-1; II d1-0-0, p0-0-1; III d1-0-1, p0-0-1, r0-0-1; IV d1-0-1, p0-0-1; tibiae III d0-1(0)-0, p1-0-1, r1-0-1, v2-2-2(a); IV p1-0-1, r1-0-1, v2-2-2(a); metatarsi III p1-0-2, r1-0-2, v2(3)-2-2(3)(a); IV p1-0-2, r1-0-2, v-numerous(a). Together with *M. formicaria*, this is one of the largest *Micaria* species. Cymbium with 4 spines apically (Figs 42, 43). Palpal femur widened (Fig. 44). Palp with two tibial apophyses (dorsal – obtuse, retrolateral – acuminate) and with a small distal-prolateral knob (Figs 41, 44). Embolus attenuate, slightly curved (Fig. 43).

Female. Total length 5.30(4.80–6.05). Carapace 2.12(1.80–2.35) long, 1.41(1.15–1.70) wide. Body colour, cheliceral dentition and leg spination as for male. Femur II 1.27(1.00–1.45) long. Epigyne with wide anterior epigynal margin. Epigynal pockets markedly curved and connivent



Map 3. The Urals, distribution of *Micaria pulicaria*.  
Карта 3. Урал, распространение *Micaria pulicaria*.



Map 4. The Urals, distribution of *Micaria silesiaca*.  
Карта 4. Урал, распространение *Micaria silesiaca*.

(Fig. 39). Spermathecae much longer than insemination ducts (Fig. 40).

**DIAGNOSIS.** This distinctive species can be recognized by the narrowed tip of the embolus and two equally long tibial apophyses (dorsal and retrolateral) in males, and by the short, paired lateral ridges of the epigyne as if crossing over the spermathecae seen through the integument.

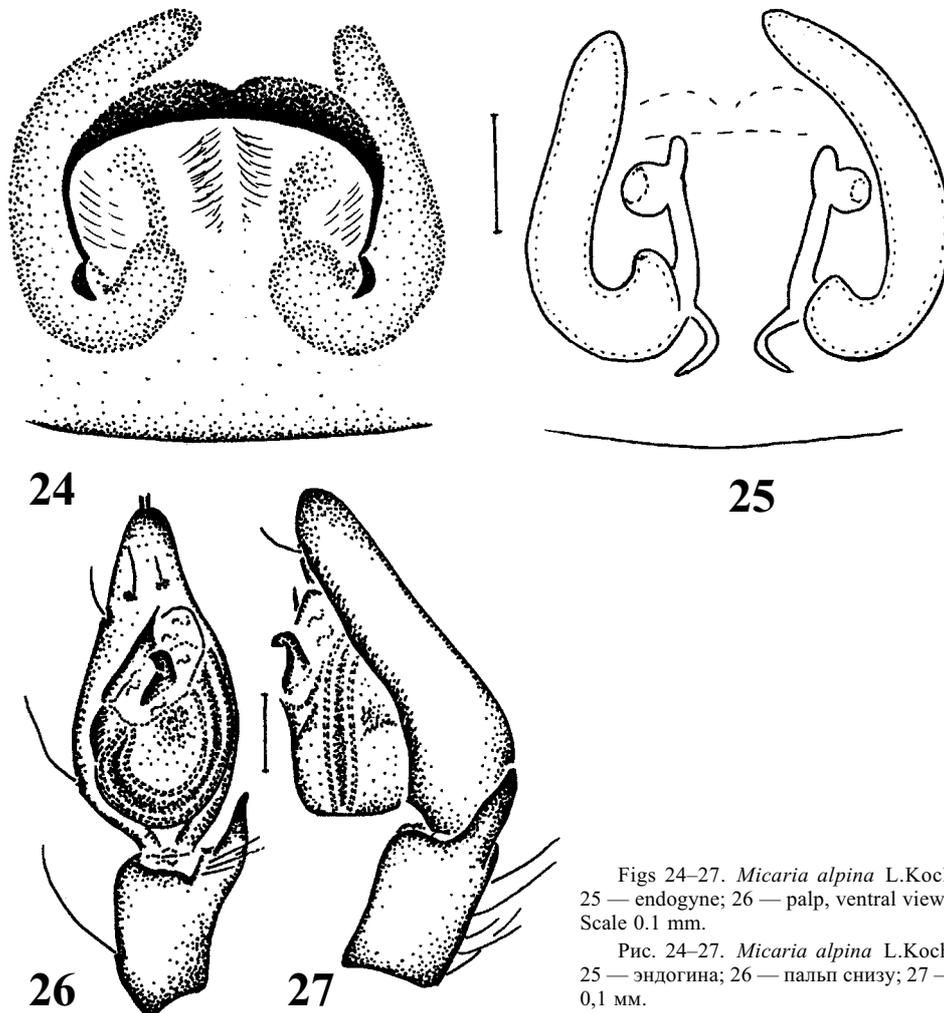
**DISTRIBUTION.** Euro-Baikalian nemoral range.

*Micaria gulliae* Tuneva et Esysunin, 2002  
Figs 45–49; Map 1.

**MATERIAL.** Only the type series from the South Urals, Oren-

burg Area, Sol-Iletsk District, Chybynda, chalk screen, 6–13.VI. 2000, G.Sh. Farzalieva, (ZMMU) [see Tuneva & Esysunin, 2002b].

**DESCRIPTION.** Male. Total length 2.38. Carapace 1.18 long, 0.90 wide, light yellow. Sternum yellow, with thin dark yellow margins. Abdomen grey. Femur II 1.03 long. Chelicerae yellow with one small promarginal tooth. Palpal femur without armature. Leg spination (I absent): II d1-0-0; III d1-0-0; IV d1-0-0; tibiae III p0-1-1, v1-1-1(a); IV v1-1-2(a); metatarsi III p0-1-1, r0-0-2, v0-1-2(a); IV p0-0-2, r0-0-2, v1-1-2(a). Cymbium with 4 spines apically (Fig. 48). Embolus tapering, protruding beyond the tegular edge; median apophysis short; large conical tegulum (Fig. 49). Tibial apophysis short and curved, situated dorsally (Figs 47, 49).



Figs 24–27. *Micaria alpina* L.Koch, 1872: 24 — epigyne; 25 — endogyne; 26 — palp, ventral view; 27 — palp, lateral view. Scale 0.1 mm.

Рис. 24–27. *Micaria alpina* L.Koch, 1872: 24 — эпигина; 25 — эндогина; 26 — палец снизу; 27 — палец сбоку. Масштаб 0,1 мм.

Female. Total length 2.58. Carapace 1.23 long, 1.08 wide. Femur II 1.00 long. Cheliceral dentition and colour as for male. Leg spination: femora I d1-0-0, p0-0-1; II d1-0-0; III d1-0-0; IV d1-0-0; tibiae III p0-1-1, v1-1-2(1)(a); IV p0-1-0, r0-1-1, v1-1-3(a); metatarsi III p0-1-2(1), r0-0-1(2), v0-1-2(a); IV p1-1-2, r0-1-2, v0-1-1(a). Epigyne relatively long with median septum (Fig. 45). Insemination ducts much longer than spermathecae and extending to the anterior epigynal margin (Fig. 46).

DIAGNOSIS. By its large conical tegulum and the long insemination ducts, this species is closest to *M. tuvensis* Danilov, 1993 (figs 1–3 in Danilov [1993]), but differs in having (1) a longer embolus and a markedly bent tibial apophysis in males, (2) a continuous anterior epigynal margin and longitudinal spermathecae (transverse in *M. tuvensis*) in females, as well as by body size, leg armature and in having a light yellow carapace (brown in *M. tuvensis*). The female of *M. gulliae* is somewhat similar to that of *M. mongunica* Danilov, 1996 and *M. bonneti* Schenkel, 1963 (figs 1A, B and 1C, D in Danilov [1996], respectively), but both of these species are characterized by having their posterior epigynal sockets being more widely spaced and by possessing rounded receptacles (longer than wide in *M. gulliae*).

DISTRIBUTION. Type locality only.

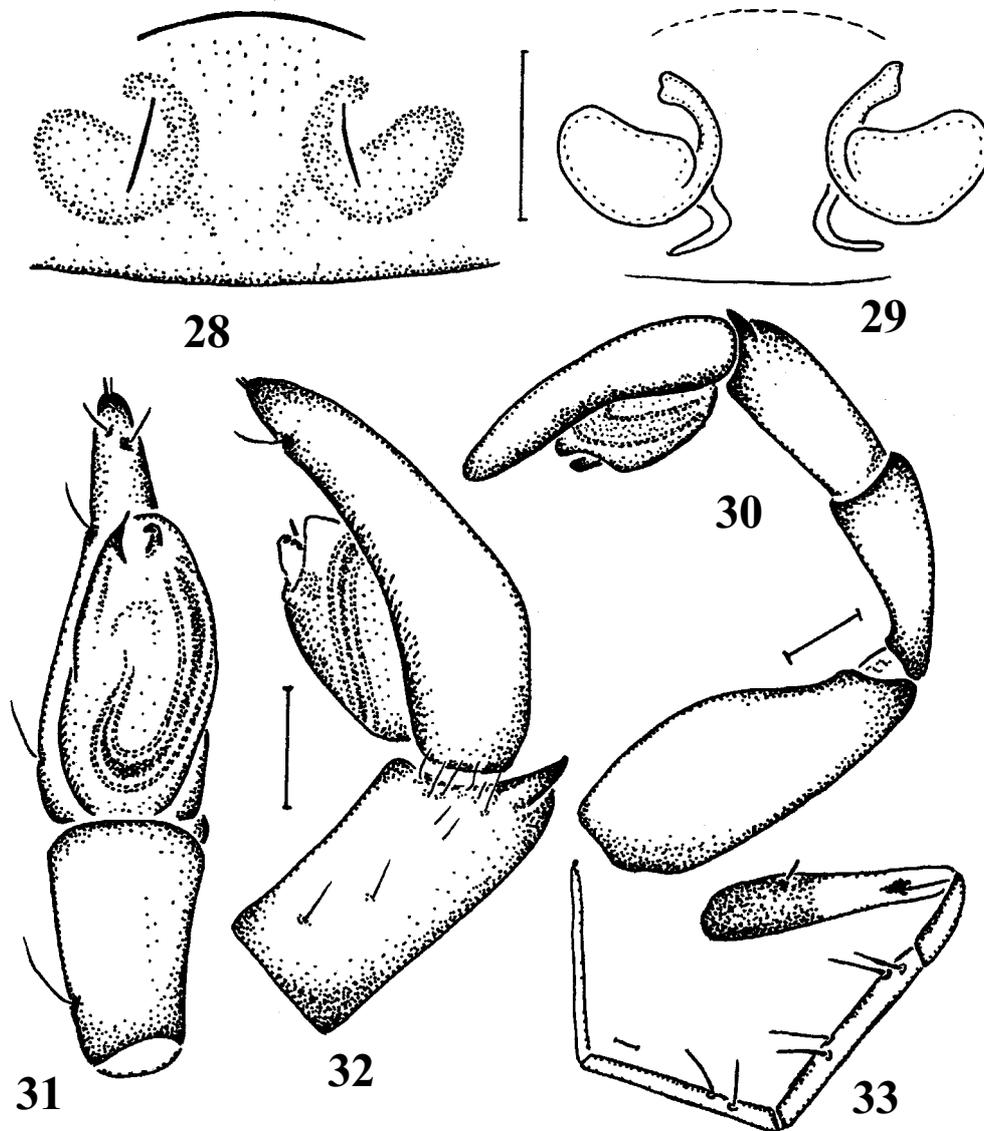
*Micaria nivosa* L. Koch, 1866

Figs 50–55; Map 5.

*Micaria nivosa*: Wunderlich, 1980: 256, figs 12, 18a-e, 40a-d; Mikhailov, 1988: 321, figs 1–3.

MATERIAL. North Urals: 1 ♀ (PSU-2725), Yekaterinburg Area, Severouralsk District, Vsevolodo-Blagodatskoe, backhouse, 06.VI.2001, AE. Middle Urals: 1 ♂ (PSU-2634), Perm Area, Perm District, Kachka, kitchen-garden, 21.V.1989, SE; 1 ♂ (PSU-1347), Perm Area, Suksun District, Chekarda, meadow, 15.VII.2000, TT; 1 ♀ (PSU), Perm Area, Perm District, Yugo-Kamsk, meadow, pit-fall-traps, 13.VI.1995, V.A. Ritskova. South Urals: 2 ♂♂, 12 ♀♀ (PSU), Bashkiria, Burzyan District, Shulgan-Tash Reserve, stony slope, 5.VII.1985, V.E. Efimik.

DESCRIPTION. Male. Total length 4.19(3.15–5.75). Carapace 1.89(1.50–2.50) long, 1.34(1.15–1.60) wide, grey-yellow to grey-brown, with spots of white scales (Fig. 3). Sternum grey-brown. Abdomen grey, with a median transverse white band and a white spot in its anterior region (Fig. 3). Chelicerae grey-yellow, with 2 promarginal teeth and 1 small retromarginal tooth. Palpal femur with a dorsomedial and dorsodistal spine. Femora I–II brown, incrassate, other



Figs 28–33. *Micaria dives* (Lucas, 1846): 28 — epigyne; 29 — endogyne; 30 — palp with femur, lateral view; 31 — palp, ventral view; 32 — palp, lateral view; 33 — femur I, lateral view. Scale 0.1 mm.

Рис. 28–33. *Micaria dives* (Lucas, 1846): 28 — эпигина; 29 — эндогина; 30 — палец и бедро сбоку; 31 — палец снизу; 32 — палец сбоку; 33 — бедро I сбоку. Масштаб 0,1 мм.

leg segments yellow-brown. Femur II 1.24(1.00–1.50) long. Leg spination: femora I d1-0-0, p0-0-1; II d1-0-0, p0-1-1; III d1-1-0, p0-1-1(0), r0-1-0; IV d1-1(0)-0; tibiae III p1-0-1, r0-0-1, v2-2-2(a); IV p0-1-1, r0-1-0, v1-1(2)-2(a); metatarsi III p1-0-2, r1-0-2, v2-2-2(a); IV p0-1-1, r0-1-1(2), v1(2)-2-2(a). Cymbium with 4 spines apically (Figs 53, 54). Tibial apophysis long and straight (Fig. 55). Median apophysis small; embolus relatively short, slim and arched (Fig. 54).

Female. Total length 4.38(3.60–4.75). Carapace 1.54(1.30–1.65) long, 1.10(1.00–1.20) wide. Body colour, chelical dentition and leg spination as in the male. Femur II 1.01(0.90–1.10) long. Leg femora brown, femora I darker and incrassate, other leg segments yellow-brown. Anterior epigynal margin interrupted in the middle. Epigyne with a pair of

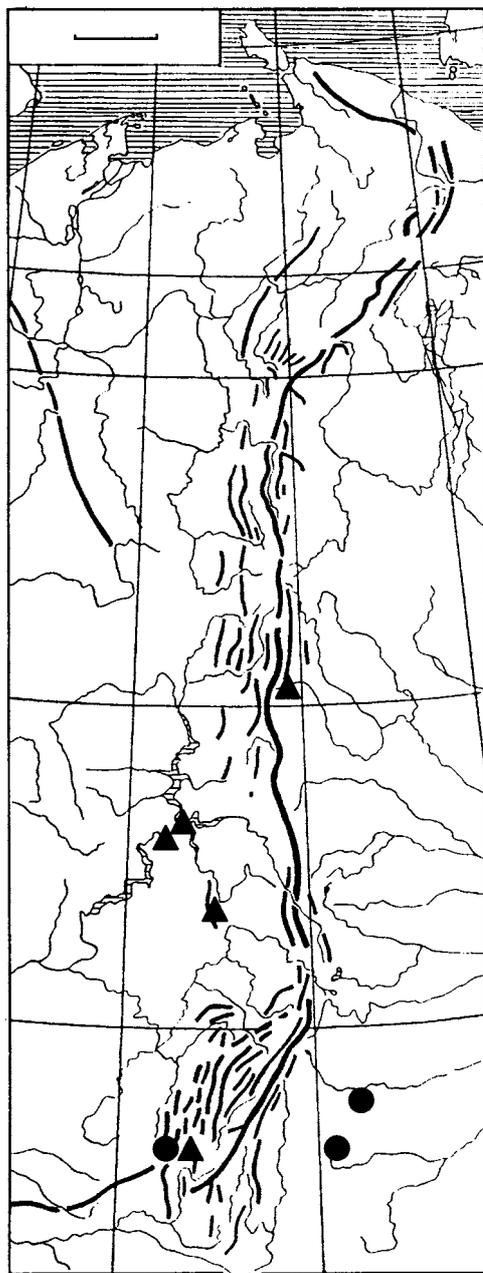
transverse, curved copulatory openings (in addition to epigynal pockets) (Figs 50, 51). Insemination ducts short (Fig. 52). Position of spermathecae highly variable (Figs 50, 51).

DIAGNOSIS. Males can easily be recognized by the massive median apophysis and the long, direct tibial apophysis; females by their paired, transverse and curved copulatory openings (in addition to the epigynal pockets).

DISTRIBUTION. Euro-Baikalian nemoral range.

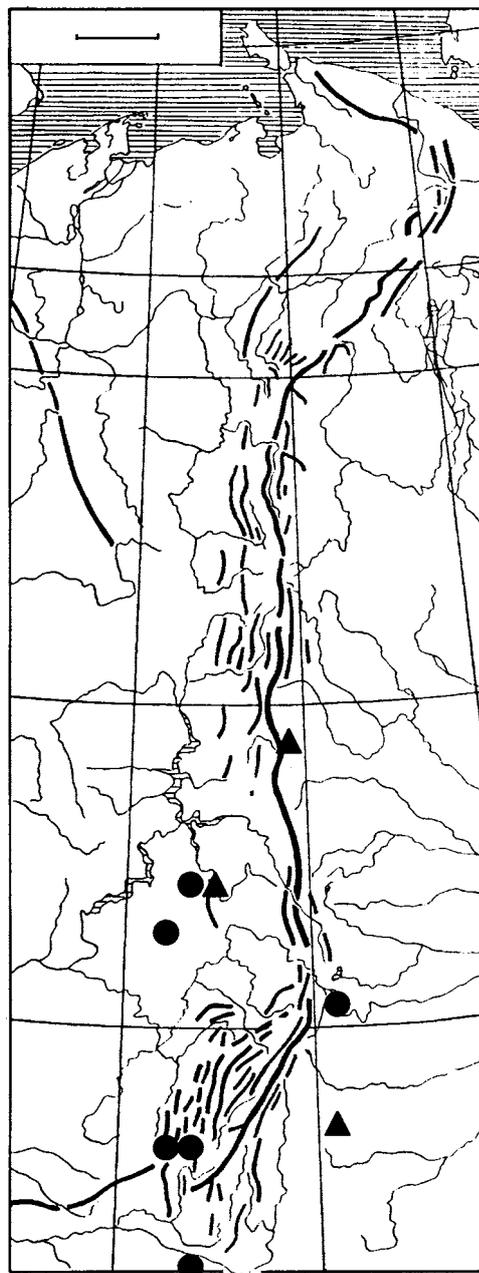
*Micaria pallipes* (Lucas, 1846)  
Figs 56–60; Map 1.

*Micaria septempunctata*: Wunderlich, 1980: 307, figs 69a–e; Mikhailov, 1988: 324, figs 4–7.



Map 5. The Urals, distribution of *Micaria formicaria* (circles) and *M. nivosa* (triangles).

Карта 5. Урал, распространение *Micaria formicaria* (кружок) и *M. nivosa* (треугольник).



Map 6. The Urals, distribution of *Micaria fulgens* (circles) and *Arboricaria subopaca* (triangles).

Карта 6. Урал, распространение *Micaria fulgens* (кружок) и *Arboricaria subopaca* (треугольник).

*Micaria pallipes* Bosmans & Blick, 2000: 449, figs 9–12; Levy, 2002: 116, figs 8–12.

**MATERIAL.** South Urals: 1 ♂ (PSU), Orenburg Area, Sol-Iletsk District, Chybynda, chalk slope, 12.VI.2003, TT; 3 ♀♀ (PSU-1938), same locality, steppe, 4.VI.2000, SE.

**DESCRIPTION.** Male. Total length 2.70. Carapace 0.93 long, 0.63 wide, dark brown to black. Femur II 0.53 long. Sternum colour as for carapace. Abdomen dark brown, with inconspicuous median spots (Fig. 13). Palpal femur dark brown, without armature. Legs femur I–II black, femur III–IV dark-brown, tibia, tarsus and metatarsus I–II yellow,

tibia, tarsus and metatarsus III–IV dark-yellow. Femur II 1.03(0.95–1.10) long. Leg spination: femora I d1-0-0, p0-0-1; II d1-0-0, p0-0-1; III d1-0-1, p0-0-1, r0-0-1; IV d1-0-1; tibiae III p1-0-1, r0-0-1, v2-2(1)-2(a); IV p0-1-1(0), r0-1-0, v2-2(1)-2(a); metatarsi III p0-1-1(2), r1-0-2, v2-2-2(a); IV p1-0-1(2), r1-0-1(2), v2-2-2(a). Cymbium with 3 spines apically (Fig. 59). Tibial apophysis long, acerate (Fig. 60). Median apophysis wide at base (in the lateral view), situated apically. Embolus direct, curved apically, markedly protruding beyond the tegular edge (Fig. 59). Seminal duct markedly distant from the tegular edge.

Female. Total length 2.73(2.50–2.95). Carapace 1.08(1.00–1.13) long, 0.73(0.68–0.78) wide. Body colour, cheliceral dentition and leg spination as in the male. Femur II 0.61(0.58–0.63) long. Anterior epigynal margin with a sharp projection in the middle. Epigynal fossa consists of three compartments (Fig. 56). Spermathecae drop-shaped. Insemination ducts curved and longer than spermathecae (Fig. 57).

DIAGNOSIS. This species is diagnosed by its small size, the very dark cephalothorax and the yellow legs with contrasting black femora. *M. pallipes* can also be separated from other *Micaria* species by the peculiar shape of the tibial apophysis, the embolic shape and the epigynal fossa subdivided in three compartments.

DISTRIBUTION. West-Palaearctic steppe range. This record from the South Urals is the easternmost locality of the range.

*Micaria pulicaria* (Sundevall, 1832)

Figs 61–66; Map 3.

*Micaria pulicaria*: Wunderlich, 1980: 252, figs 3a–i, 16a–g, 38a–d; Platnick & Shadab, 1988: 7, figs 2–5.

MATERIAL. **North Urals**: 1 ♀ (PSU), Perm Area, Krasnovishersk District, Visherskii Reserve, *Betula* forest, fire-site, pitfall-traps, 26.VII–5.VIII.1995, SE; **Middle Urals**: 1 ♀ (PSU-2545), Perm Area, Perm District, Kachka, brushwood of *Betula*, pitfall-traps, 02–13.VI.2001, SE; 1 ♂ (PSU-2358), Perm Area, Perm City, *Betula* forest, pitfall-traps, 10–20.VII.2001, A.P. Yakovleva; 2 ♂♂ (PSU-1743), Perm Area, Kishert District, Preduralie Reserve, *Pinus-Picea* forest, pitfall-traps, 25.VI.1983, 24.V.1988, T.I. Gridina; 2 ♀♀ (PSU-1348), Perm Area, Suksun District, Chekarda, water meadow, pitfall-traps, 01.VIII.2000, TT; 1 ♀ (PSU-453), Perm Area, environs of Okhansk Town, *Pinus* forest with bilberry and green moose, 09.VI.1980, O. Kozlova; 1 ♂ (PSU), Yekaterinburg Area, Kirovgrad District, Visimskii Reserve, *Betula-Abies* forest, 5.VI.1990, S.L. Esynin; 1 ♀ (PSU), same locality, *Abies-Picea* forest, fire-site, pitfall-traps, 10–19.VIII.1999, SE; 2 ♂♂ (PSU), Perm Area, Kungur District, Spasskaya Gora Reserve, steppe, of *Stipa* and another herbs pitfall-traps, 23.X.1987–22.IV.1989, SE; 2 ♂♂ (PSU), s.l., shrub steppe, pitfall-traps, 27.V.1989, SE; 3 ♀♀ (PSU), s.l., *Betula* forest, pitfall-traps, 22.VIII.1988, 27.V.1989, SE; 5 ♂♂, 1 ♀ (PSU), Perm Area, Perm City, Dolgoe Lake, wet meadow, pitfall-traps, V–IX.1991–1993, SE. **South Urals**: 2 ♂♂, 1 ♀ (PSU-2391), Chelyabinsk Area, Troitsk District, Troitskii Reserve, bank of Kukai Lake, pitfall-traps, 12.VI.1992, P. Durmanov; 3 ♂♂, 1 ♀ (PSU-2900), Orenburg Area, Kuvandyk District, Aituar, bank of brook in steppe, pitfall-traps, 21–25.V.1996, NM; 1 ♂, 1 ♀ (PSU), same area, Sol-Iletsk District, Novoiletsk, sandy stand, 5–15.VI.2003, TT; 1 ♀ (PSU), Chelyabinsk Area, Ilimskii Reserve, in house, 15.V.1986, AP; 3 ♂♂, 1 ♀ (PSU), same locality, dry meadow, pitfall-traps, 01–07.VI.1991, AP.

DESCRIPTION. Male. Total length 3.37(2.65–3.90). Carapace 1.47(1.15–1.80) long, 1.10(0.90–1.25) wide, brown. Sternum brown. Abdomen grey, with an inconspicuous median transverse white band and a white spot anteriorly (Fig. 1). Chelicerae brown, with two promarginal teeth and one small retromarginal tooth. Palpal femur grey-yellow, with a dorsomedial spine. Femora I–II brown, incrassate, other leg segments dark yellow. Femur II 1.01(0.75–1.20) long. Leg spination: femora I d1-0-0, p0-0-1; II d1-0-0, p0-0-1; III d1-0-0, p0-0-1, r0-0-1(0); IV d1-0-0; tibiae III p1-0-1, r0-1(0)-0, v1-1-2(a); IV p0-1-0, r0-1-0, v1-1(2)-1(2)(a); metatarsi III p1(0)-0-2, r1(0)-0-2(1), v2-2-2(a); IV p1(0)-0-1, r1-0-1, v1(2)-2-2(a). Cymbium with 4 spines apically (Figs 63, 64). Tibial apophysis relatively short, constricted at about a half of its length (Fig. 65). Median apophysis long, situated centrally. Embolus short, arched and wide at base (Figs 63, 64).

Female. Total length 4.06(3.25–4.45). Carapace 1.50(1.25–1.70) long, 1.13(0.95–1.30) wide, dark brown. Sternum grey-brown. Abdomen grey-brown dorsally and grey ventrally. Palpal femur grey-brown, with a dorsomedial spine. Femora I–II dark brown, incrassate, other leg segments yellow-brown. Femur II 1.02(0.80–1.35) long. Leg spination: femora I d1-0-0, p0-0-1; II d1-0-0, p0-0-1; III d1-0-1(0), p0-0-1; IV d1-0-0; tibiae III p1-0-1, r0-0-1(0), v1-1-2(a); IV p0-1(0)-0, r0-1(0)-0, v1-1-2(a); metatarsi III p1-0-2(1), r1-0-2, v2-2-2(a); IV p0-0-1, r0-0-1, v1-1-2(a). Epigynal pockets direct, connivent and separated by less than the width of the spermathecae (Fig. 61). Insemination ducts long, equal to spermathecae. Spermathecae kidney-shaped (Fig. 62). Shape of spermathecae varies (see figs 38a–d in Wunderlich [1980]; figs 125–128 in Tullgren [1945]).

DIAGNOSIS. By the structure of the male palp and the long insemination ducts of females, this species is closest to *M. tripunctata*, but differs by having a shorter and more curved embolus in males and relatively straight and connivent epigynal pockets in females.

REMARKS. European and North American specimens vary in the bulbus shape (length/width ratio is 2.1–2.5) (see Figs 16c–e in Wunderlich [1980]; Figs 130 in Tullgren [1945]; Fig. 2 in Platnick & Shadab [1988]) and differ from the Ural specimens (length/width ratio is 1.8) (Figs 63, 64).

DISTRIBUTION. Holarctic temperate range.

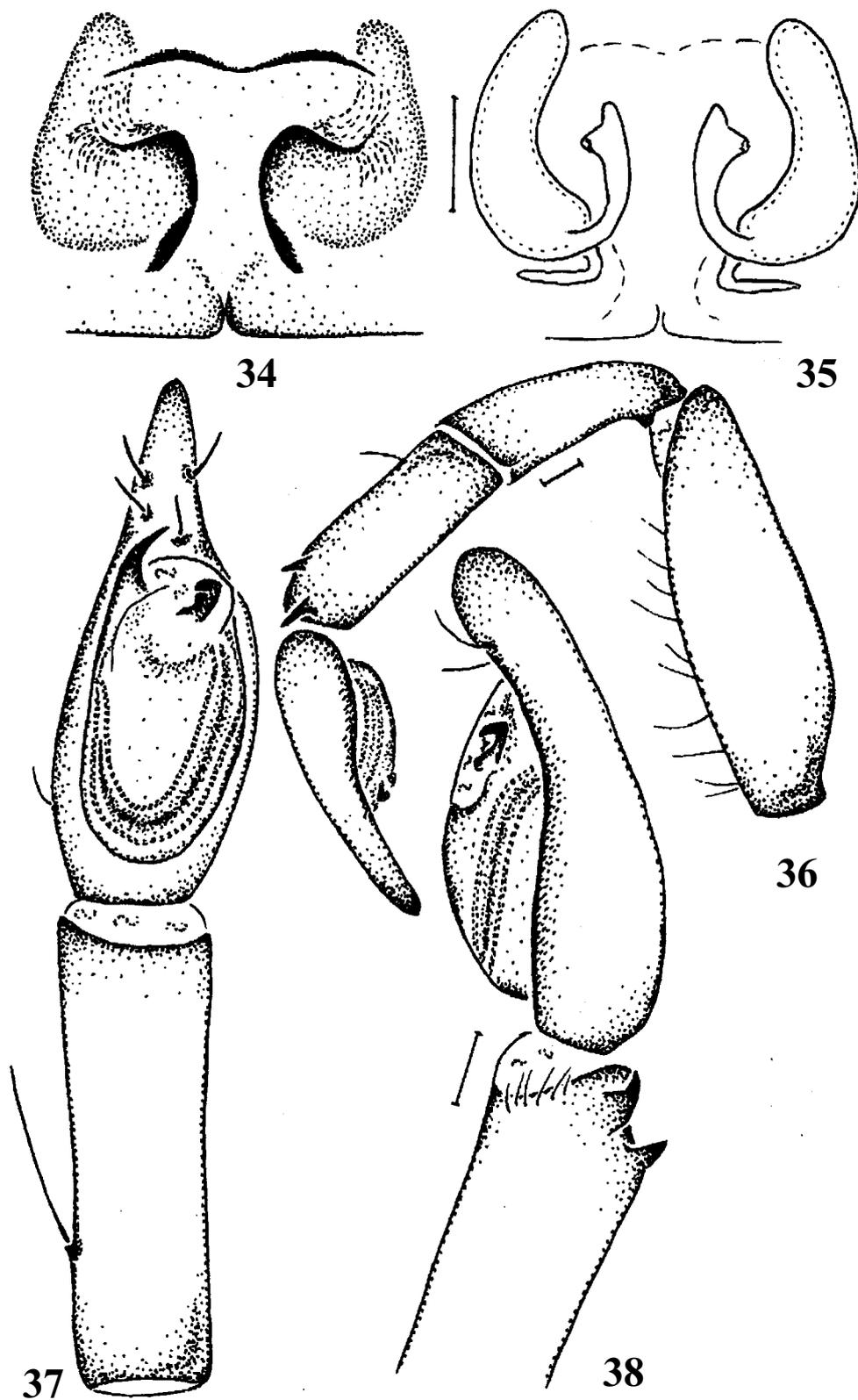
*Micaria rossica* Thorell, 1875

Figs 67–74; Map 2.

*Micaria rossica*: Wunderlich, 1980: 308, figs 70a–c, 286, figs 33a–e, 57a–e (sub *M. scenica*); Platnick & Shadab, 1988: 27; Mikhailov & Marusik, 1995: 101, figs 27–28, 35.

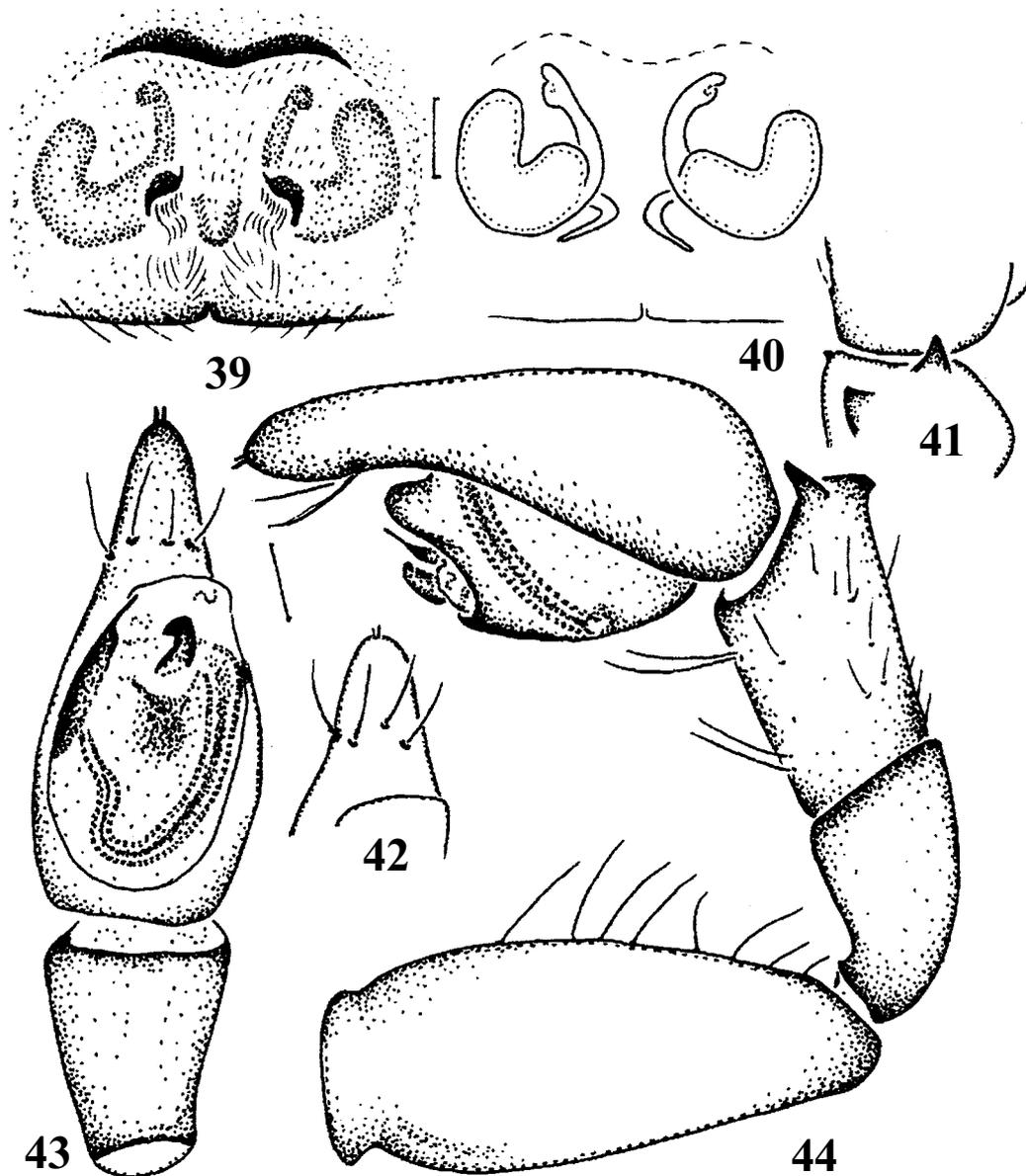
MATERIAL. **South Urals**: 1 ♂ (PSU-1848), near Orenburg, Dongus, 1992, S. Kuznetsov; 13 ♂♂, 1 ♀ (PSU-1849), Orenburg Area, Kuvandyk District, Aituar, stone steppe, under stone, 15–23.V.1997, NM; 4 ♂♂, 1 ♀ (PSU-3115), same area, Svetlyi District, Kayrakol Lake, steppe, 25.VIII.2002, TT; 7 ♂♂, 10 ♀♀ (PSU-1244), same area, Sol-Iletsk District, Chybynda, steppe, pitfall-traps, 05–13.VI.2000, SE; 1 ♂, 2 ♀♀ (PSU), same locality, chalk slope, pitfall-traps, 07–14.VI.2003, TT; 1 ♂, 2 ♀♀ (PSU), same area, Sol-Iletsk District, Novoiletsk, sand ravine, pitfall-traps, 05–15.VI.2003, TT; 2 ♀♀ (PSU), Bashkiria, Baimak District, environs of Bekeshevo, limestone denudation, 30.VII–2.VIII.1987, V.E. Efimik; 6 ♂♂, 2 ♀♀ (PSU), Chelyabinsk Area, Troitsk District, Troitskii Reserve, saline land, pitfall-traps, 2–11.VI.1992, P. Durmanov; 1 ♀ (PSU), same locality, in house, 22.V.1993, V.E. Efimik; 1 ♂ (PSU), same area, Troitsk District, environs of Berlin, 08.VI.1993, V.G. Novokshonov; 1 ♀ (PSU), same area, Troitsk District, Ui River, steppe, under stone, 14.VII.1995, V.E. Efimik.

DESCRIPTION. Male. Total length 3.89(3.45–4.75). Carapace 1.74(1.60–2.05) long, 1.16(1.05–1.35) wide, dark brown. Sternum dark brown. Abdomen grey-brown, with two white spots anteriorly and three white spots about the middle, forming a slightly curved transverse row (Figs 16, 17). Chelicerae brown, with one promarginal and one small retromarginal tooth. Palpal femur dark brown, with one dorsomedial and one dorsodistal spine. Femora I–II dark brown, femora III–IV brown, tibiae, tarsi and metatarsi I–II dark yellow (tibiae with longitudinal fascia), tibiae, tarsi and metatarsi III–IV yellow-brown. Femur II 1.30(1.15–1.55) long. Leg spination: femora I d1-0-1, p0-0-1; II d1-0-1, p0-0-1; III d1-0-1, p0-0-1, r0-0-1; IV d1-0-1, r0-0-1(0); tibiae I v2-2-0; II v1(2)-2-2(1); III d0-1-0, p1-0-1, r0-0-1, v2-2-2(a); IV p1-0-1, r1-0-1, v2-2-2(a); metatarsi II v2-0-0; III p1-0-2, r1-0-2, v2-2-2(a); IV p1-0-2, r1-0-2, v2-2-2(a). Cymbium with 3 spines apically (Figs 72, 73). Palpal tibia with a very short, wide tibial apophysis and a dorsomedian knob



Figs 34–38. *Micaria formicaria* (Sundevall, 1832): 34 — epigyne; 35 — endogyne; 36 — palp with femur, lateral view; 37 — palp, ventral view; 38 — palp, lateral view. Scale 0.1 mm.

Рис. 34–38. *Micaria formicaria* (Sundevall, 1832): 34 — эпигина; 35 — эндогина; 36 — палец и бедро сбоку; 37 — палец снизу; 38 — палец сбоку. Масштаб 0,1 мм.



Figs 39–44. *Micaria fulgens* (Walckenaer, 1802): 39 — epigyne; 40 — endogyne; 41 — apical part of male palpal tibia, lateral view; 42 — cymbium, apical part; 43 — palp, ventral view; 44 — palp with femur, lateral view. Scale 0.1 mm.

Рис. 39–44. *Micaria fulgens* (Walckenaer, 1802): 39 — эпигина; 40 — эндогина; 41 — вершина голени пальпа самца, сбоку; 42 — вершина цимбиума; 43 — палец снизу; 44 — палец сбоку. Масштаб 0,1 мм.

(Figs 71, 74). Median apophysis minute, almost inconspicuous. Embolus filiform, locked in the thick, distal tegular projection (Fig. 73).

Female. Total length 5.44(4.45–6.20). Carapace 1.99(1.75–2.15) long, 1.28(1.10–1.40) wide. Body colour, cheliceral dentition and leg spination as in the male. Femur II 1.32(1.20–1.45). Epigyne with a median septum. Spermathecae relatively long and narrow; position and shape of the spermathecae highly variable (Figs 67–70).

DIAGNOSIS. By the filiform embolus locked in the thick tegular extension and the reduced median apophysis in males, as well as by the presence of the median epigynal septum in females, this species is closest to the North American *M. foxi* Gertsch, 1933 (Fig. 62–65 in Platnick, Shadab

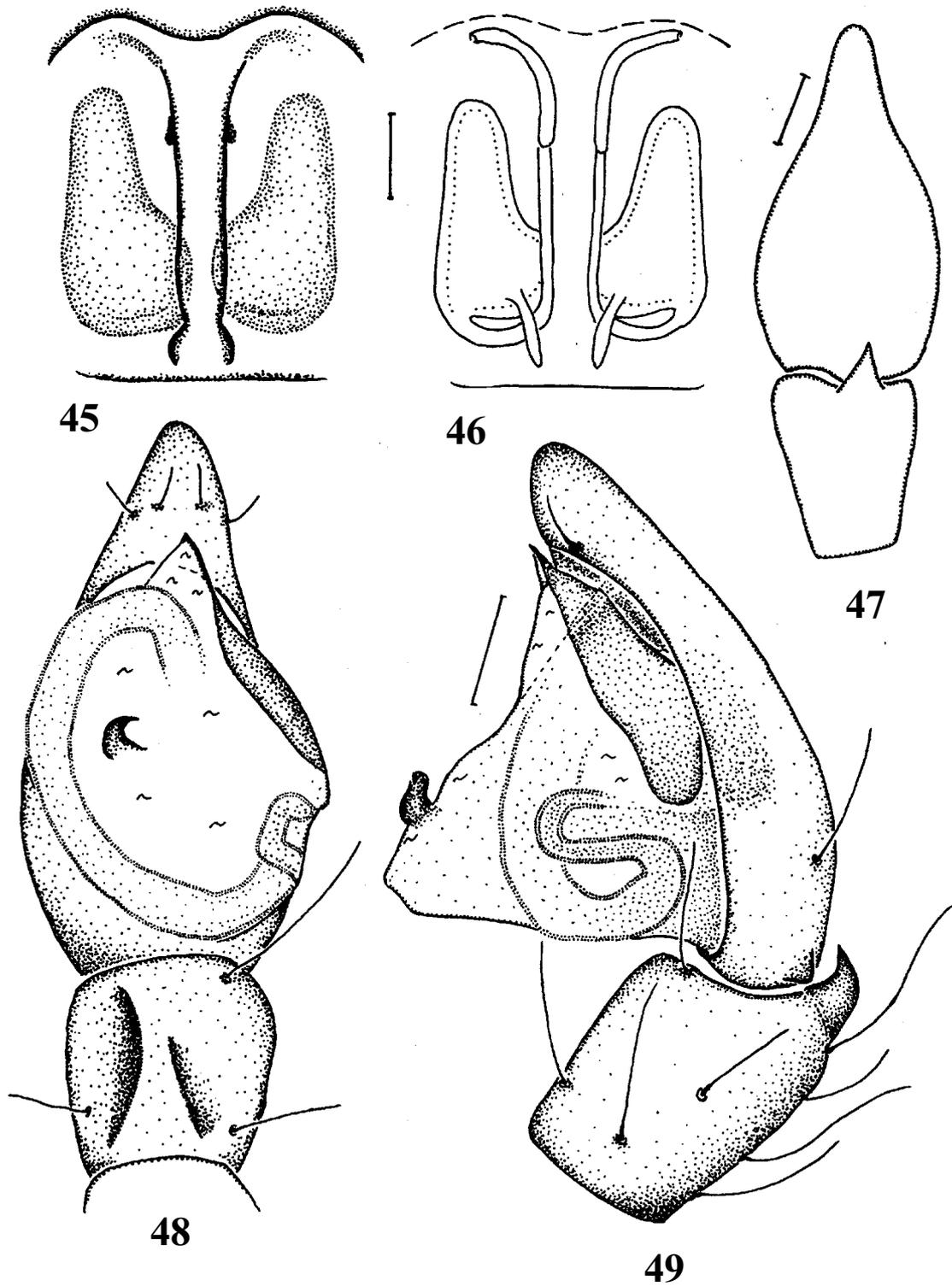
[1988]), but differs in having a longer embolus and a larger epigynal septum.

DISTRIBUTION. A trans-Palaeartic-West Nearctic polyzonal range.

*Micaria silesiaca* L. Koch, 1875  
Figs 75–79; Map 4.

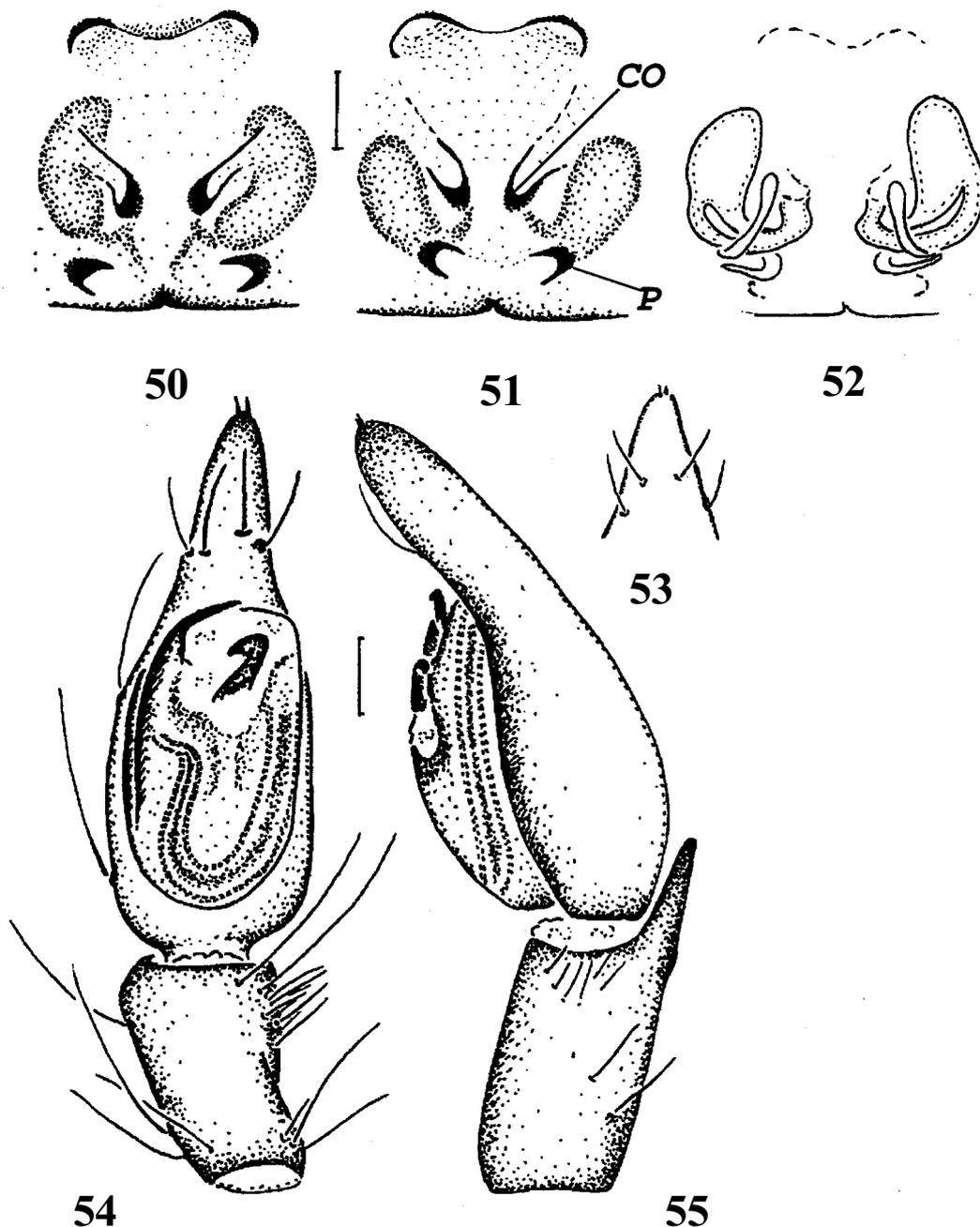
*Micaria silesiaca*: Wunderlich, 1980: 275, figs 8, 28a–d, 50a–c.

MATERIAL. North Urals: 1 ♂ (PSU-995), Yekaterinburg Area, Ivdel District, Denezhkin Kamen Mountain, 1100 m a.s.l., tundra, pitfall-traps, 03–07.VIII.1998, AE; 1 ♀ (PSU), Yekaterinburg Area, Karpinsk District, Kytlym, gravel bank of brook, 18.VI.2003, O.A. Pukalchuk. Middle Urals: 2 ♂♂, 1 ♀ (PSU-1525), Yekaterinburg Area, Yekaterinburg, wheat field, pitfall-traps, 21.VI.1998, E.A.



Figs 45–49. *Micaria gulliae* Tuneva & Esyunun, 2003: 45 — epigyne; 46 — endogyne; 47 — palp, dorsal view; 48 — palp, ventral view; 49 — palp, lateral view. Scale 0.1 mm.

Рис. 45–49. *Micaria gulliae* Tuneva & Esyunun, 2003: 45 — эпигина; 46 — эндогина; 47 — палец сверху; 48 — палец снизу; 49 — палец сбоку. Масштаб 0,1 мм.

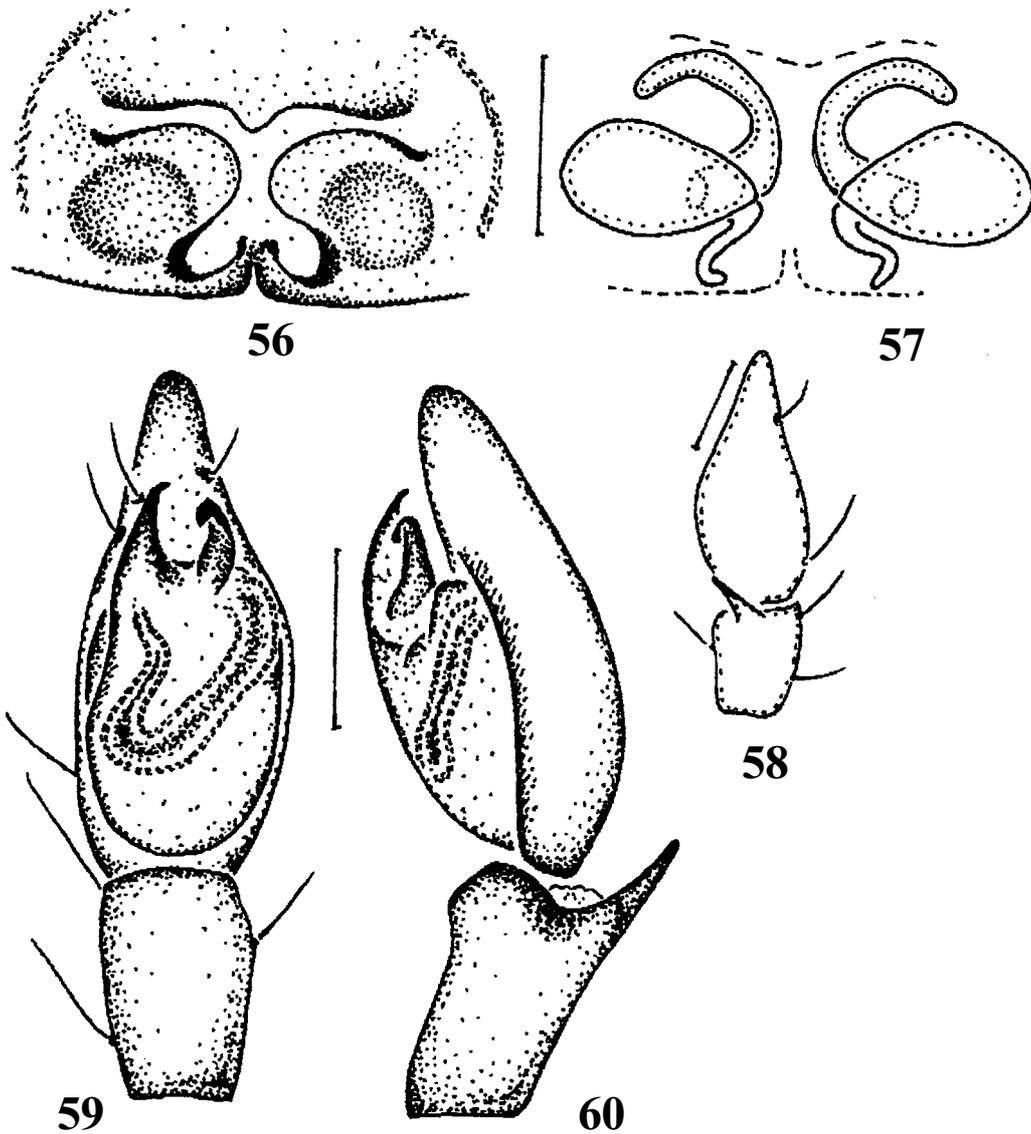


Figs 50–55. *Micaria nivosa* L.Koch, 1866: 50, 51 — epigyne, variants; 52 — endogyne; 53 — cymbium, apical part; 54 — palp, ventral view; 55 — palp, lateral view. Scale 0.1 mm. Abbreviations: CO — copulatory opening; P — epigynal pocket.

Рис. 50–55. *Micaria nivosa* L.Koch, 1866: 50, 51 — эпигина, варианты; 52 — эндогина; 53 — вершина цимбиума; 54 — палец снизу; 55 — палец сбоку. Масштаб 0,1 мм. Сокращения: CO — вход в эпигину; P — нижний карман.

Belskaya; 1 ♂ (PSU-2544), Perm Area, Perm District, Kachka, brushwood of *Betula*, pitfall-traps, 02–13.VI.2001, SE; 1 ♂ (PSU-2209), Perm Area, Dobryanka District, Polazna, limestone denudation, pitfall-traps, 02.VI–13.VII.2001, VK; 1 ♂ (PSU-1745), Perm Area, Kishert District, Preduralie Reserve, meadow, pitfall-traps, 13.VI.2001, L.S. Shumilovskih; 1 ♀ (PSU-1519), Perm Area, Gornozavodsk District, Basegi Reserve, south slope, tundra with bilberry, 01.VII–11.VIII.1984, SE; 1 ♂ (PSU-1520), Perm Area, Bar-

da District, Sarashi, *Pinus* forest, pitfall-traps, 06.V–01.VI.1991, VK; 6 ♂♂, 1 ♀ (PSU-1516), Perm Area, Kungur District, Spaskaya Gora Reserve, stone steppe, pitfall-traps, 11–27.VI.1987, 24.VI.1988, SE; 26 ♂♂, 10 ♀♀ (PSU-1517), Perm Area, environs of Perm City, Verkhnyaya Kuriya, sand site in *Pinus* forest, pitfall-traps, 9.VI–5.IX.1990, VK; 10 ♂♂, 13 ♀♀ (PSU-3365), Perm Area, Suksun District, Klyuchi, steppe slope, pitfall-traps, 03–31.VII.2001, VK; South Urals: 1 ♂ (PSU-1518), Chelyabinsk Area,



Figs 56–60. *Micaria pallipes* (Lucas, 1846): 56 — epigyne; 57 — endogyne; 58 — palp, dorsal view; 59 — palp, ventral view; 60 — palp, lateral view. Scale 0.1 mm.

Рис. 56–60. *Micaria pallipes* (Lucas, 1846): 56 — эпигина; 57 — эндогина; 58 — палец сверху; 59 — палец снизу; 60 — палец сбоку. Масштаб 0,1 мм.

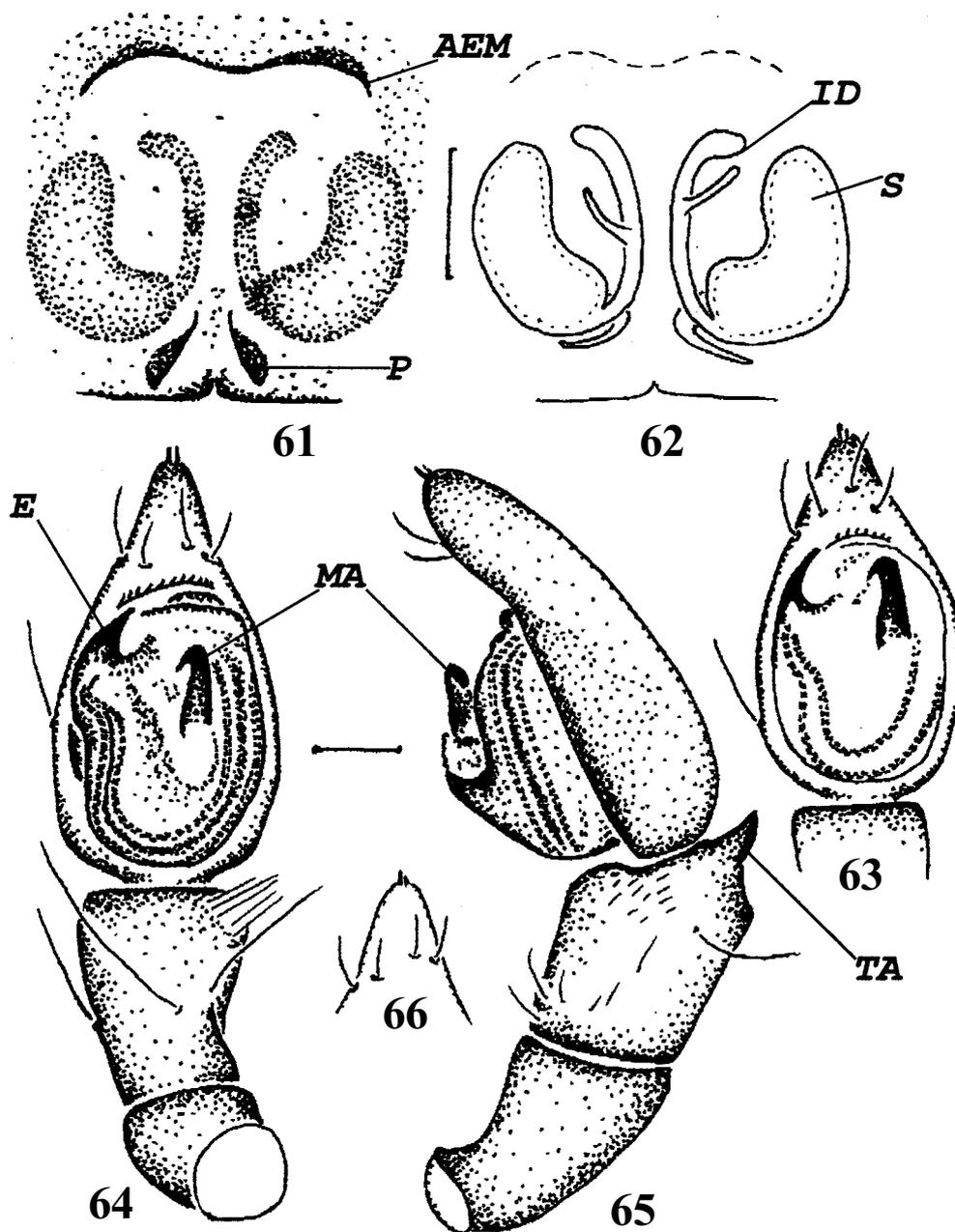
Ilmenskii Reserve, dry meadow, 7.VI.1991, AP; 2 ♂♂, 1 ♀ (PSU-1521), Bashkiria, Burzyansk District, Bashkirskii Reserve, mountain steppe, sweeping, 19.VI.1988, V.E. Efimik; 1 ♀ (PSU-1522), Bashkiria, Meleuz District, Syrtlanovo, steppe meadow, pitfall-traps, 22.VII–1.VIII.1990, V.E. Efimik.

**DESCRIPTION.** Male. Total length 3.61(3.10–4.30). Carapace 1.56(1.25–1.90) long, 1.09(0.90–1.30) wide, brown. Sternum yellow-brown to brown. Abdomen slightly constricted at the middle, grey with two anterior white spots and with a median transversally white line (Figs 11, 12). Chelicerae brown, with two promarginal teeth and one small retromarginal tooth. Palpal femur brown with one dorsodistal spine. Legs dark yellow, femora I–II slightly darker than other segments. Femur II 1.10(0.90–1.30) long. Leg spination: femora I d1-0-0, p0-0-1; II d1-0-0, p0-0-1; III d1-0-1, p0-0-1, r0-0-1; IV d1-0-0(1); tibiae III p0-1-1, r0-0-1, v2-2-2(a); IV p0-1(0)-1, r0-0-

1, v2-2-2(a); metatarsi III p0-1-2, r0-1-1(2), v2(1)-2-2(a); IV p0-1-2, r0-1-1, v2(1)-2-2(a). Cymbium with three apical spines (Fig. 78). Tibial apophysis short, acerate (Fig. 79). Median apophysis small, situated centrally on the bulbus. Embolus straight and short, constricted at tip; embolar tip protruding distally beyond the bulbus (Fig. 78).

Female. Total length 4.18(3.85–4.50). Carapace 1.58(1.45–1.65) long, 1.13(1.05–1.25) wide. Body colour, cheliceral dentition and leg spination as in the male. Femur II 1.07(1.00–1.15) long. Epigyne without an anterior epigynal margin. Copulatory openings and epigynal pockets large, semicircular (Figs 75, 76). Spermathecae L-shaped, insemination ducts shorter than spermathecae (Fig. 77).

**DIAGNOSIS.** By the structure of the male palp and the epigyne, *M. silesiaca* is close to *M. pulcherrima* Capori-



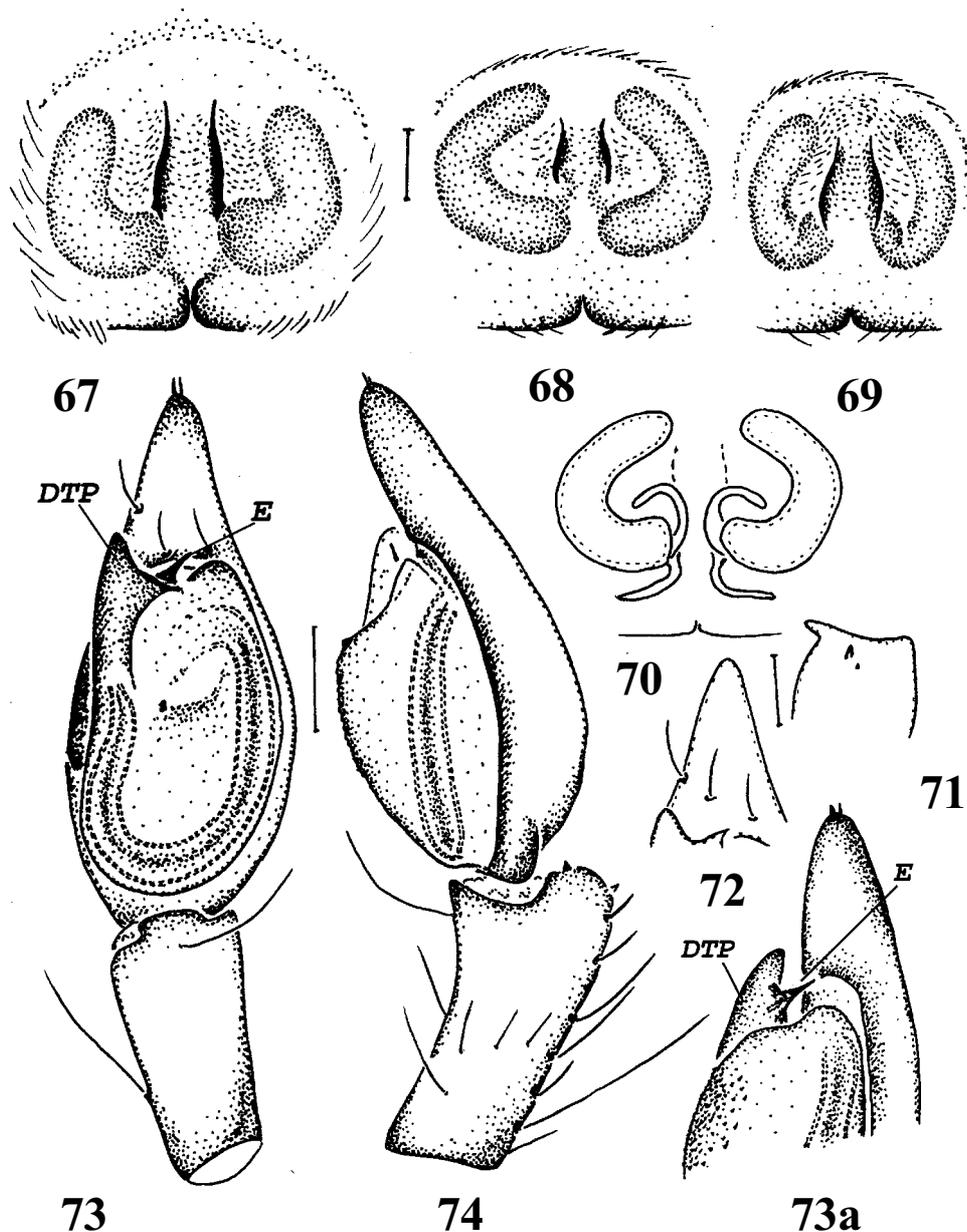
Figs 61–66. *Micaria pulicaria* (Sundevall, 1832): 61 — epigyne; 62 — endogyne; 63, 64 — palp, ventral view, variants; 65 — palp, lateral view; 66 — cymbium, apical part. Scale 0.1 mm. Abbreviations: E — embolus; MA — median apophysis; TA — tibial apophysis; AEM — anterior epigynal margin; P — epigynal pocket; ID — insemination ducts; S — spermathecae.

Рис. 61–66. *Micaria pulicaria* (Sundevall, 1832): 61 — эпигина; 62 — эндогина; 63, 64 — палец снизу, варианты; 65 — палец сбоку; 66 — вершина цимбиума. Масштаб 0,1 мм. Сокращения: E — эмболос; MA — медиальная апофиза; TA — тибальная апофиза; AEM — передний край эпигины; P — нижний карман; ID — оплодотворительные дукты; S — сперматека.

acco, 1935 (Figs A–D in Danilov [1996]), but differs from it by the position and shape of the tibial apophysis in males and by the semicircular epigynal pockets (triangular in *M. pulcherrima*) and the smaller insemination ducts in females. The male of *M. silesiaca* is closest to that of *M. yeniseica* Marusik et Koponen, 2002 (Figs 1–2 in Marusik & Koponen [2002]), but differs in the position of the upper loop

of the seminal duct, which does not coincide with the position of the median apophysis, and by the seminal duct forming a gradual turn at the tegular base (whereas it forms a strong turn in *M. yeniseica*).

DISTRIBUTION. A European (Euro-West Siberia) polyzonal range.



Figs 67–74. *Micaria rossica* Thorell, 1875: 67, 68, 69 — epigyne, variants; 70 — endogyne; 71 — apical part of male palpal tibia, dorsal view; 72 — cymbium, apical part; 73 — palp, ventral view; 73a — palp, ventral-lateral view; 74 — palp, lateral view. Scale 0.1 mm. Abbreviations: E — embolus; DTP — distal tegular projection.

Рис. 67–74. *Micaria rossica* Thorell, 1875: 67, 68, 69 — эпигина, варианты; 70 — эндогина; 71 — верхина голени пальпа самца сверху; 72 — верхина цимбия; 73 — пальп снизу; 73a — пальп снизу-сбоку; 74 — пальп сбоку. Масштаб 0,1 мм. Сокращения: E — эмболос; DTP — дистальный вырост тегулула.

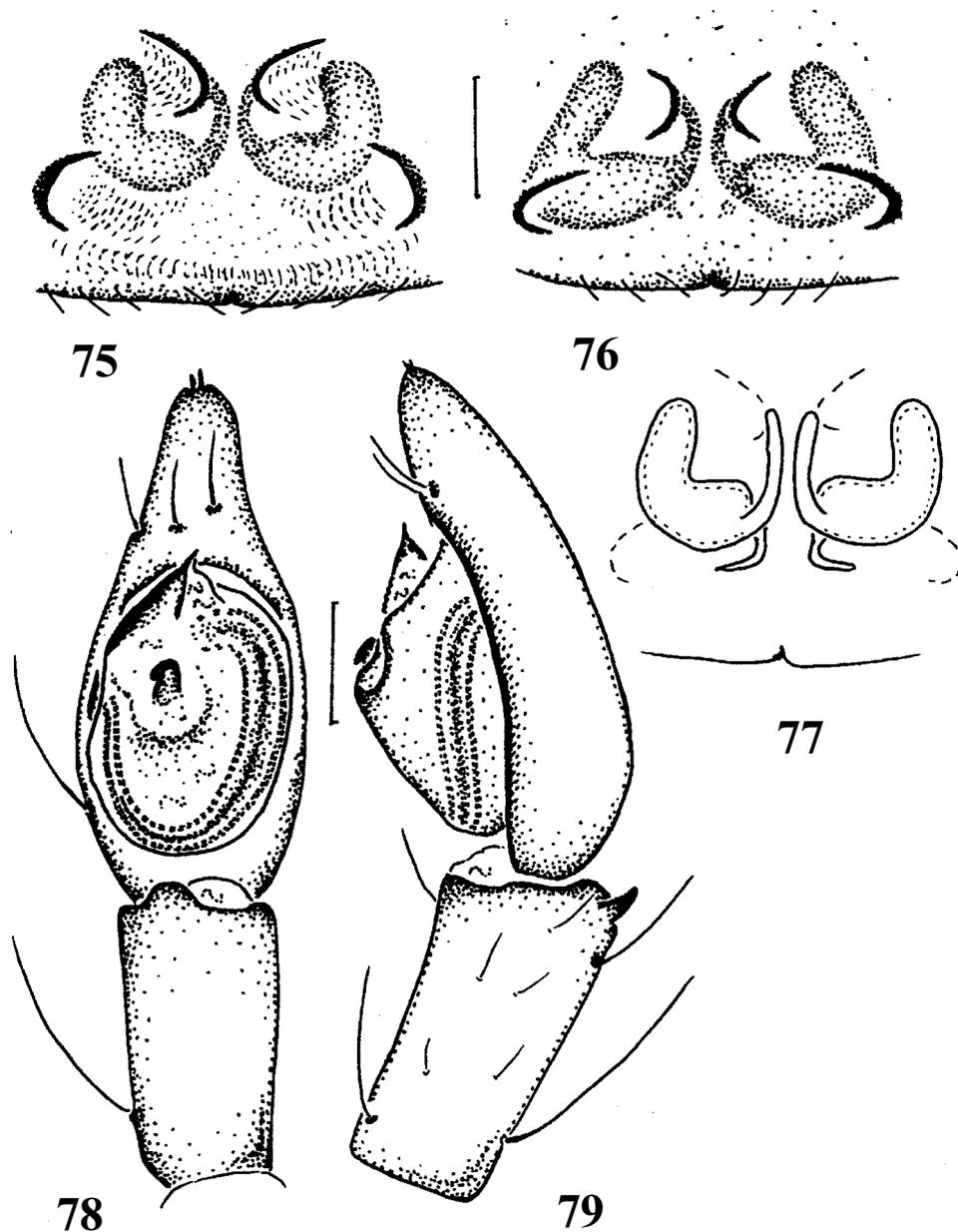
*Micaria tripunctata* Holm, 1978

Figs 80–83; Map 1.

*Micaria tripunctata*: Wunderlich, 1980: 255, figs 17a–c, 39; Platnick & Shadab, 1988: 10, figs 6–9.

MATERIAL. **South Yamal**: 1 ♂, 1 ♀ (PSU), Tyumen Area, Yamalo-Nenets Autonomous Okrug, Khadyta-Yakha River, multi-herbaceous meadow, pitfall-traps, 7.VIII.1981, SE. **North Urals**: 2 ♂♂ (PSU), Perm Area, Krasnovishersk District, Kvarkush Range, tundra with *Juniperus*, pitfall-traps, 9–18.VII.1996, NM.

DESCRIPTION. Male. Total length 3.67(3.45–4.10). Carapace 1.53(1.40–1.75) long, 1.22(1.10–1.35) wide, brown. Sternum colour as in carapace. Abdomen grey (Fig. 4). Chelicerae brown, with two promarginal teeth and one small retromarginal tooth. Palpal femur dark brown, with one dorsodistal spine. Femur I dark brown, other leg segments yellow-brown. Femur II 1.03(0.95–1.10) long. Leg spination: femora I d1-0-0, p0-0-1; II d1-0-0, p0-0-1; III d1-0-1, p0-0-1, r0-0-1; IV d1-0-1; tibiae III p1-0-1, r0-0-1, v2-



Figs 75–79. *Micaria silesiaca* L.Koch, 1875: 75, 76 — epigyne, variants; 77 — endogyne; 78 — palp, ventral view; 79 — palp, lateral view. Scale 0.1 mm.

Рис. 75–79. *Micaria silesiaca* L.Koch, 1875: 75, 76 — эпигина, варианты; 77 — эндогина; 78 — палец снизу; 79 — палец сбоку. Масштаб 0,1 мм.

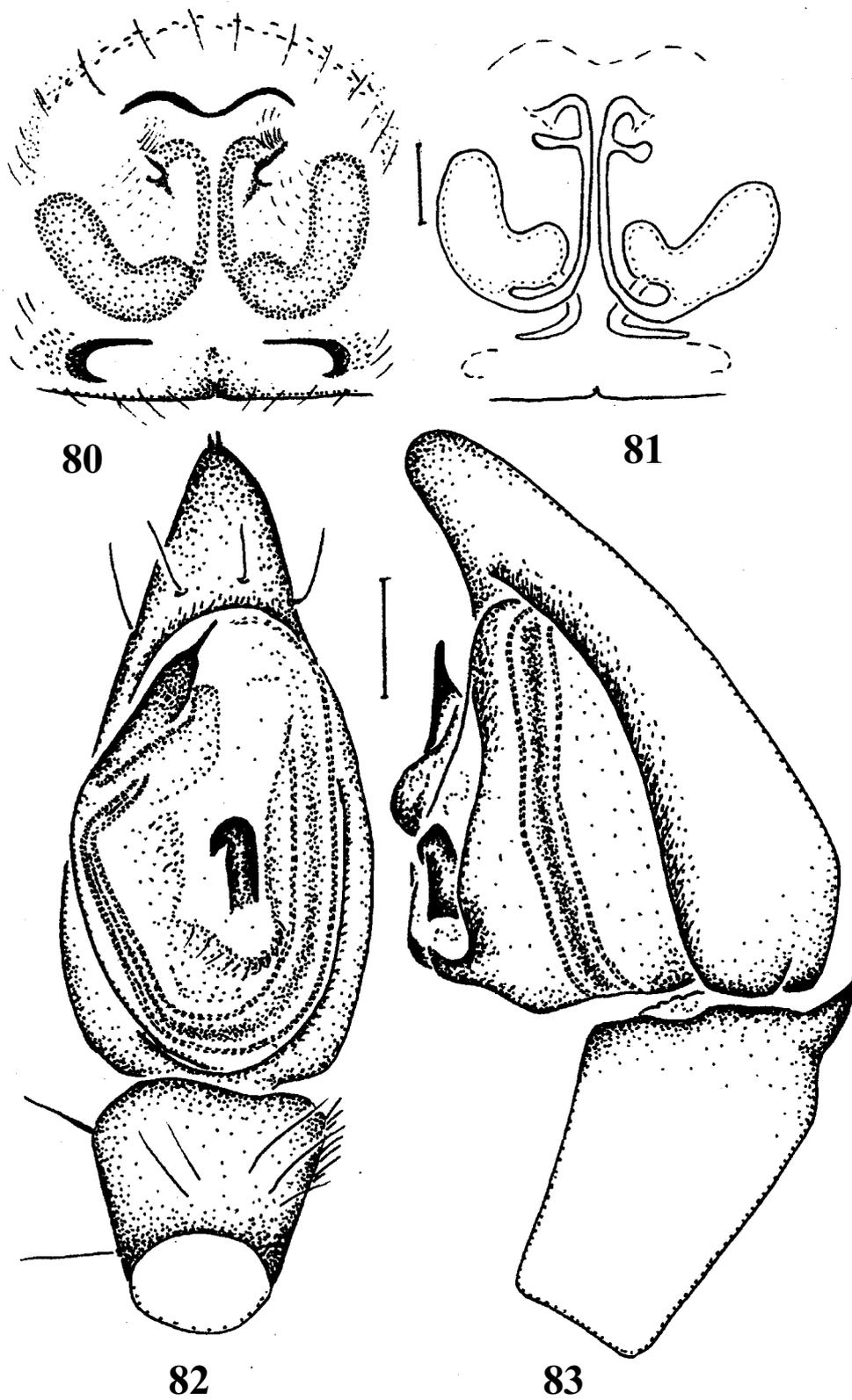
2(1)-2(a); IV p0-1-1(0), r0-1-0, v2-2(1)-2(a); metatarsi III p0-1-1(2), r1-0-2, v2-2-2(a); IV p1-0-1(2), r1-0-1(2), v2-2-2(a). Cymbium with four apical spines (Fig. 82). Tibial apophysis short, acerate and slightly curved (Fig. 83). Median apophysis large, situated basally on the bulbus. Embolus long, widest in the middle and acerate apically (Fig. 82).

Female. Total length 4.10. Carapace 1.50 long, 1.15 wide. Body colour, cheliceral dentition and legs as in the male. Femur II 1.00 long. Anterior epigynal margin undulate, relatively narrow. Epigynal pockets wide, separated by

more than the length of the anterior epigynal margin (Fig. 80). Spermathecae kidney-shaped. Insemination ducts longer than spermathecae (Fig. 81).

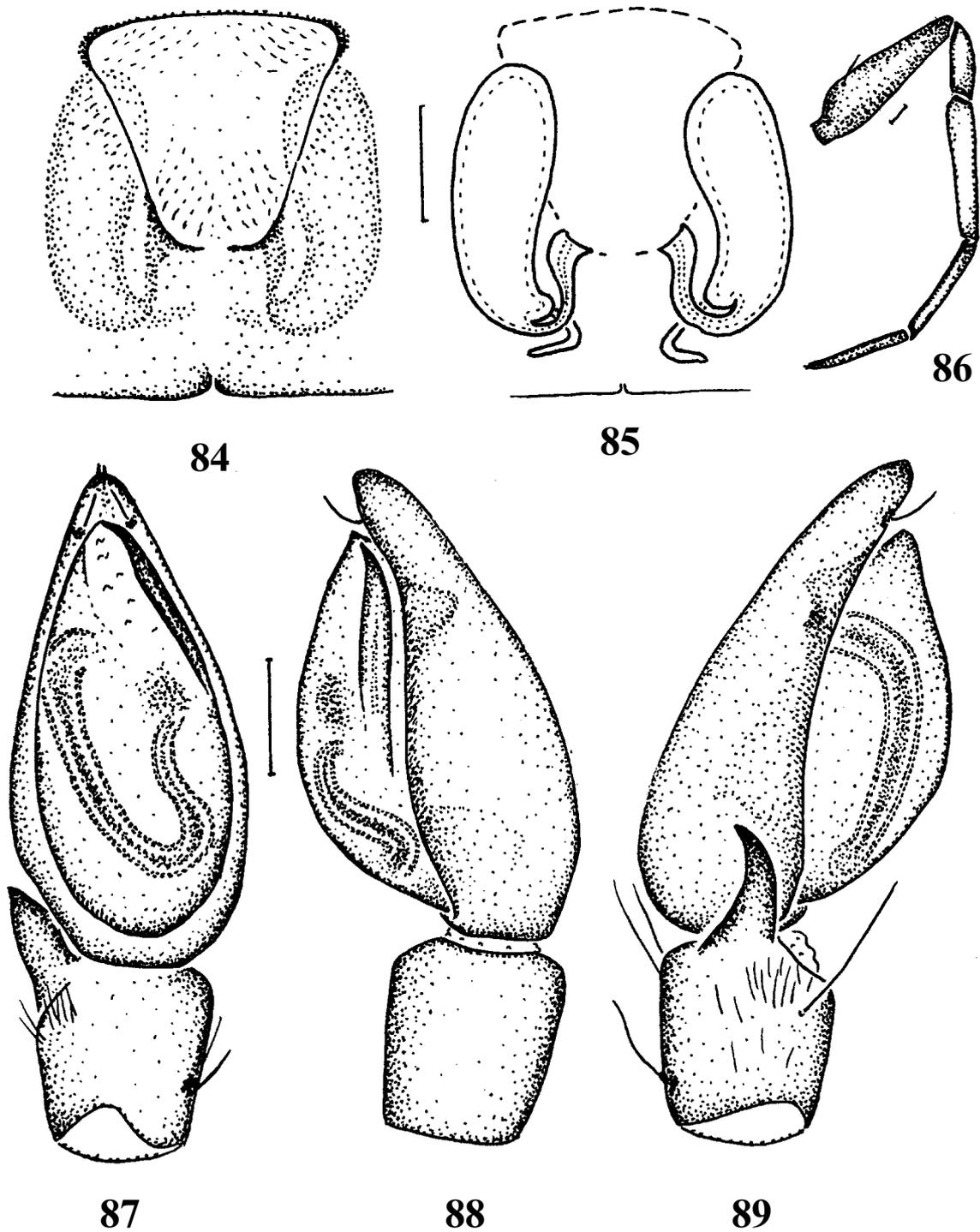
DIAGNOSIS. By the structure of the male palp and the long insemination ducts in females, this species is closest to *M. pulicaria*, but differs by having a longer and straight embolus in males and markedly curved and more widely separated epigynal pockets in females.

DISTRIBUTION. A trans-Palaearctic-West Nearctic boreal range.



Figs 80–83. *Micaria tripunctata* Holm, 1978: 80 — epigyne; 81 — endogyne; 82 — palp, ventral view; 83 — palp, lateral view. Scale 0.1 mm.

Рис. 80–83. *Micaria tripunctata* Holm, 1978: 80 — эпигина; 81 — эндогина; 82 — палец снизу; 83 — палец сбоку. Масштаб 0,1 мм.



Figs 84-87. *Arboricaria subopaca* Westring, 1861: 84 — epigyne; 85 — endogyne; 86 — femur II, ventral view; 87 — palp, ventral view; 88, 89 — palp, lateral view. Scale 0.1 mm.

Рис. 84-87. *Arboricaria subopaca* Westring, 1861: 84 — эпигина; 85 — эндогина; 86 — бедра II, сбоку; 87 — палец, снизу; 88, 89 — палец, сбоку. Масштаб 0,1 мм.

*Arboricaria* Bosmans, 2000

The spiders of the genera *Micaria* and *Arboricaria* resemble each other by having small, slender and ant-like bodies. In addition, both genera are similar in the structure of the spinnerets and chelicerae, as well as in possessing body scales. Additionally, all the species of *Arboricaria* are likely to be myrmecophilous and live on tree bark. *Arboricaria* can be distinguished by having a more flattened, wider cephalothorax, significantly fewer leg spines and in the structure of its copulatory organs. Males possess a large, bifid or curved tibial apophysis and lack a median apophysis. Females have a larger epigynal fossa with a distinctly chitinized posterior margin (for further details see Bosmans & Blick [2000]).

Except for *A. subopaca*, *Arboricaria* species occur in the Mediterranean and Central Europe.

*Arboricaria subopaca* (Westring, 1861)  
Figs 84–89; Map 6.

*Micaria subopaca*: Wunderlich, 1980: 290, figs 35a–e, 59.

**MATERIAL.** North Urals: 1 ♀ (PSU), Yekaterinburg Area, Karpinsk District, Kytlym, birch forest, 14.VI.2004, O.A. Pukalchuk. Middle Urals: 1 ♀ (PSU-1746), Perm Area, Kishert District, Preduralie Reserve, in house, 13.IX.1994, SE; 1 ♀ (PSU), Chelyabinsk Area, Kartala District, meadow of *Calamagrostis* and other herbs, pitfall-traps, 2–25.VII.2002, M.P. Zolotarev.

**OTHER MATERIAL.** Middle Siberia: 1 ♂ (PSU), Krasnoyarsk Province, Stolby Reserve, *Pinus* forest with mixed meadows, 04.VIII.2001, A.Yu. Sipaeva.

**DESCRIPTION.** Male. Total length 2.95. Carapace 1.05 long, 0.83 wide, brown. Sternum brown. Abdomen grey-brown. Palpal femur brown, with one dorsodistal spine. Legs grey-yellow, femora I–II slightly darker than other segments. Femur II 0.73 Leg spination: femora I d1-0-0; II d1-0-0; III d1-0-0; IV d1-0-0; tibiae III v0-0-2(a); IV v0-1-1(a); metatarsi III p0-0-1, v1-1-2(a); IV p0-0-1, v1-1-2(a). Cymbium with two spines apically (Fig. 87). Tibial apophysis curved (Fig. 88). Median apophysis absent (Fig. 87).

Female. Total length 2.78(2.58–2.98). Carapace 1.11 (1.08–1.15) long, 0.85(0.83–0.88) wide. Body colour as in the male. Femur II 0.79(0.78–0.80) long. Leg spination: tibiae III v0-1-1(a); IV v0-1-2(a); metatarsi III p0-0-1, r0-0-1, v0-1-2(a); IV p0-0-1, r0-0-1, v1(0)-1-2(a), additional leg spination as in the male. Epigyne with large fossa and distinctly sclerotized posterior margin (Fig. 84). Spermathecae elongate, fabiform, much longer than insemination ducts (Fig. 85).

**DISTRIBUTION.** A Euro-Middle Siberian nemoral range.

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