

Quill mites of the genus *Syringophilopsis* (Acari, Syringophilidae) from passeriform birds of Poland with descriptions of five new species

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Abstract

A complete check-list of quill mites of the genus *Syringophilopsis* known from Polish birds is given. Five new species of this genus are described: *S. kazmierski* sp. nov. from *Ficedula hypoleuca* and *F. parva* (Muscicapidae), *S. rusticus* sp. nov. and *S. hirundus* sp. nov. from *Hirundo rustica* (Hirundinidae), *S. locustellus* sp. nov. from *Locustella naevia* and *L. luscinioides* (Sylviidae), and *S. spinolettus* sp. nov. from *Anthus spinoletta* (Motacillidae). The species *S. fringilla* (Fritsch, 1958) is redescribed, and neotype is fixed. Four quill mite species are new records for the Polish fauna. New host species for family Syringophilidae and new host species for particular species of the genus *Syringophilopsis* are given.

Key words

Syringophilopsis, Syringophilidae, quill mites, taxonomy, ectoparasites, Passeriformes

Introduction

Syringophilopsis Kethley, 1970 is the most diverse genus of the ectoparasitic mites of the family Syringophilidae. Until now, 33 species of this genus (belonging to three complex-groups: *turdus*, *fringilla* and *elongatus* (Bochkov and Galloway 2001)) were described from various areas (Europe, Russia, Asia, North America and Africa) (Bochkov and Mironov 1998, Bochkov *et al.* 2000, Fain *et al.* 2000, Bochkov and Galloway 2001, Skoracki and Dabert 2001). Species of *Syringophilopsis* occupy primary and secondary feathers of avian host from two orders: Passeriformes (31 species) and Coraciiformes (2 species) (Fain *et al.* 2000, Skoracki and Dabert 2000).

The quill mites fauna of Poland is very poorly known with only 25 species recorded from this area (Skoracki 1999a, b, 2002; Skoracki and Dabert 1999; Skoracki and Skoracka 1999; Skoracki *et al.* 2000, 2001; Bochkov *et al.* 2001; Skoracki and Magowski 2001; Skoracki and Bochkov 2002; Skoracki and Kiljan 2002). Among them, the genus *Syringophilopsis* includes 14 species found on 21 host species (Table I). In the present paper, five new species of syringophilid mites belonging to the genus *Syringophilopsis* are described: *S. kazmierski* sp. nov., *S. rusticus* sp. nov., *S. spinolettus* sp. nov., *S. hirundus* sp. nov. and *S. locustellus* sp. nov. are de-

scribed. In addition four quill mite species are new to the Polish fauna, and four bird species are new hosts for particular species of syringophilid mites. Complete check-list of quill mites of the genus *Syringophilopsis* known from Polish fauna is given in Table I.

Materials and methods

The mite material used in the present study was collected by author and various ornithologists from Poland. Mites were mounted in polyvinyl lactophenol medium on microslides and studied with differential interference (Nomarski) contrast with an Olympus BH2 microscope.

The nomenclature of idiosomal setae is based on that of Fain (1979) in version adapted for the family Syringophilidae (Bochkov and Mironov 1998). The terminology for morphology and leg chaetotaxy follows these of Grandjean (1944) and Kethley (1970). All measurements including scale bars in figures are given in micrometers (μm). Setal measurements of the holotypes are incomplete, because some setae are broken. Bird taxonomy follows that of Howard and Moore (1991).

The holotypes and most of the paratypes are deposited in the Department of Animal Morphology, A. Mickiewicz University, Poznań, Poland (UAM). Some paratypes are depos-

Table. I. Quill mites of the genus *Syringophilopsis* Kethley, 1970 from Polish birds

Species	Host	Family
<i>Syringophilopsis troglodytis</i> (Fritsch, 1958)	<i>Troglodytes troglodytes</i>	Troglodytidae
<i>S. turdus</i> (Fritsch, 1958)	<i>Turdus pilaris</i>	Turdidae
	<i>T. philomelos</i>	Turdidae
	<i>T. iliacus</i>	Turdidae
<i>S. acrocephali</i> Skoracki, 1999	<i>Acrocephalus scirpaceus</i>	Sylviidae
	<i>A. palustris</i> **	Sylviidae
	<i>A. schoenobaenus</i> **	Sylviidae
<i>S. locustellus</i> sp. nov.	<i>Locustella naevia</i>	Sylviidae
	<i>L. luscinioides</i>	Sylviidae
<i>S. phylloscopi</i> Bochkov, Mironov et Skoracki, 2001*	<i>Phylloscopus collybita</i>	Sylviidae
	<i>P. trochilus</i> **	Sylviidae
<i>S. kirgizorum</i> Bochkov, Mironov et Kravtsova, 2000*	<i>Carduelis chloris</i>	Fringillidae
	<i>C. carduelis</i> **	Fringillidae
<i>S. fringilla</i> (Fritsch, 1958)*	<i>Fringilla coelebs</i>	Fringillidae
<i>S. kazmierski</i> sp. nov.	<i>Ficedula hypoleuca</i>	Muscicapidae
	<i>F. parva</i>	Muscicapidae
<i>S. rusticus</i> sp. nov.	<i>Hirundo rustica</i>	Hirundinidae
<i>S. hirundus</i> sp. nov.	<i>Hirundo rustica</i>	Hirundinidae
<i>S. sturni</i> Chirov et Kravtsova, 1995*	<i>Sturnus vulgaris</i>	Sturnidae
<i>S. aegithali</i> Bochkov, Mironov et Skoracki, 2001*	<i>Aegithalos caudatus</i>	Aegithalidae
<i>S. spinolettus</i> sp. nov.	<i>Anthus spinoletta</i>	Motacillidae
<i>S. blaszaki</i> Skoracki et Dabert, 1999	<i>Anthus trivialis</i>	Motacillidae

*New mite species to the Polish fauna; **new host species.

ited in the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia (ZIN) and in the Smithsonian National Museum of Natural History (SNM).

Results

Family Syringophilidae Lavoipierre, 1953
Subfamily Syringophilinae Lavoipierre, 1953
Genus *Syringophilopsis* Kethley, 1970

Syringophilopsis "turdus" group
Syringophilopsis kazmierski sp. nov. (Figs 1–8)

Female (Figs 1–4): Total body length of holotype 835 (825–915 in 10 paratypes).

Gnathosoma: Hypostomal apex with two pairs of median protuberances (Fig. 3) and two pairs of lips. Peritremes M-shaped, each transverse branch with 4–5 chambers, each longitudinal branch with 9–10 chambers (Fig. 4). Stylophore slightly constricted posteriorly, 160 (160–180) long.

Idiosoma: Propodosomal plate not divided, weakly sclerotized, slightly concave on anterior margin and lateral bands, not punctated. Bases of setae *vi*, *ve* and *sci* situated on lateral margins of propodosomal plate. Length ratio of setae *vi:ve:sci* 1:1:3.5. Bases of setae *d1* situated on or near propodosomal plate, bases of setae *sce* situated near this plate. Seta *sce* bases situated anterior to the level of seta *d1* bases. Two small and

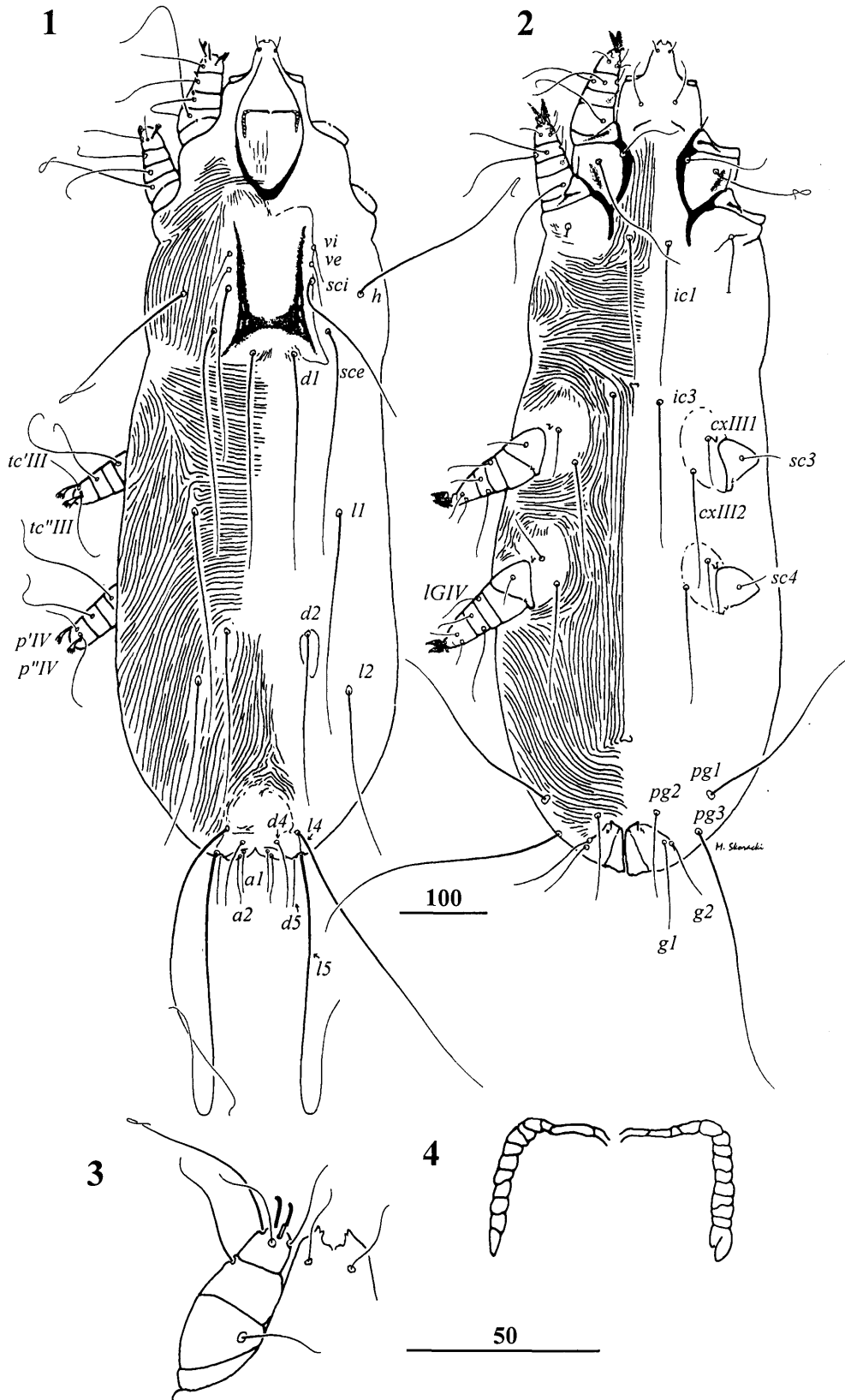
weakly sclerotized hysterosomal plates present. Distance between bases of setae *l1* and *d2* 1.2–1.5 times longer than distance between bases of setae *d2* and *l2*. Pygidial plate weakly sclerotized, not punctated, anterior and lateral margins indistinct. Genital setae *g1* 1.4 times longer than *g2*. Setae *pg2* and *g1* subequal in length. Length ratio of setae *pg1:pg2:pg3* 2.3:1:3. Cuticular striations as in Figures 1 and 2.

Legs: Epimeres I fused to epimeres II in middle part of epimeres II. Coxae I and II well sclerotized, coxae III and IV weakly developed. All coxae without punctations. Setae *cxIII1* 2 times shorter than *cxIII2*. Setae *p'* and *p''* of legs III and IV with 10–12 tines. Setae *tc'''III–IV* 1.4 times longer than *tc'''III–IV*. Setae *lgIV* present.

Length of setae and distance between setal bases (10 paratypes): *vi* 50 (45–55); *ve* 50 (45–55); *sci* (175–190); *h* 220 (215–290); *sce* 255 (250–290); *l1* 165 (190–245); *l2* 195 (170–210); *l4* 325 (325–370); *l5* (385–420); *d1* 220 (224–245); *d2* (180–210); *d4* 55 (55–100); *d5* 55 (40–60); *a1* 25 (30–45); *a2* 25 (30–40); *g1* (80–90); *g2* (65); *ic1* (130–160); *ic3* (100–160); *pg1* (210–245); *pg2* (85–90); *pg3* (265–315); *sc3* 40 (30–45); *sc4* 40 (40–50); *cxIII1* (50–60); *cxIII2* (120–140); *tc'''III–IV* (50–60); *tc'''III–IV* (75–80); *l1–d2* 120 (95–120); *d2–l2* 65 (75–80).

Male (Figs 5–8): Total body length 620–645 in 8 paratypes.

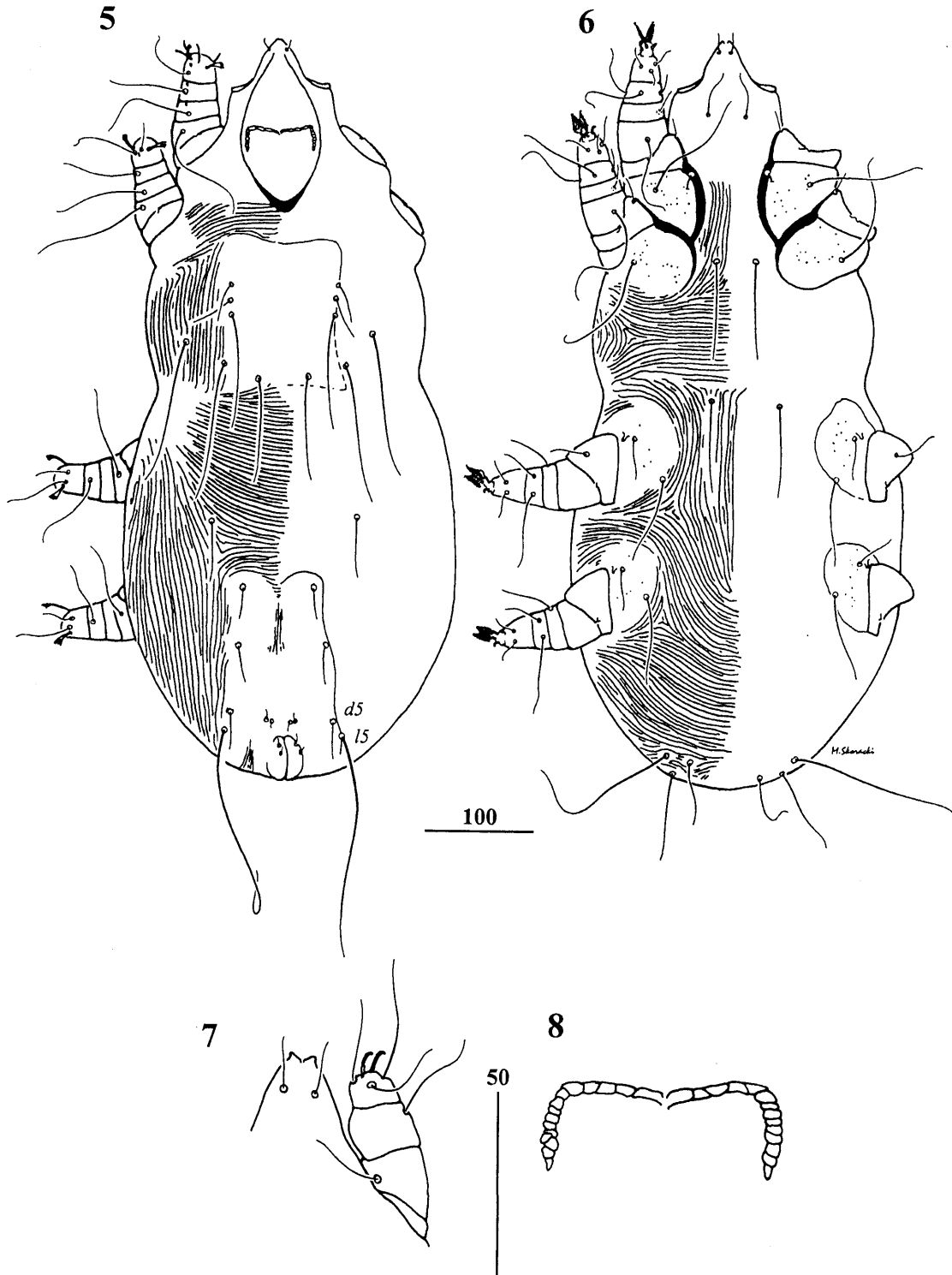
Gnathosoma: Hypostomal apex as in Figure 7. Each transverse branch of peritremes with 5 chambers, each longitudinal branch with 7–8 chambers (Fig. 8). Stylophore constricted posteriorly, 145–160 long.



Figs 1–4. *Syringophilopsis kazmierski* sp. nov., female: 1 – dorsal view, 2 – ventral view, 3 – gnathosoma in ventral view, 4 – peritremes

Idiosoma: Propodosomal plate weakly sclerotized, slightly concave on anterior margin. Lateral and posterior margins of propodosomal plate indistinct. Length ratio of setae *vi:ve*: *sci* 1:1:3.4–3.7. Bases of setae *sce* situated anterior to the level

of bases of setae *d1*. Hysterosomal plate fused to pygidial plate and deeply concave on anterior margin. Bases of setae *d2*, *l2*, *d5* and *l5* set on margins of hysterosomal plate. Setae *ll* variable in length – subequal to *d2* and *l2* or 1.5 times longer



Figs 5–8. *Syringophilopsis kazmierski* sp. nov., male: 5 – dorsal view, 6 – ventral view, 7 – gnathosoma in ventral view, 8 – peritremes

than *d2* and *l2*. Length ratio of setae *d5:l5* 1:5–6. Three pairs of paragenital setae present, length ratio of setae *pg1:pg2:pg3* 2.5–3.2:1:1.3–2. Cuticular striations as in Figures 5 and 6.

Legs: Epimeres I fused to epimeres II. All coxae weakly sclerotized and punctated. Setae *tc''* III–IV 1.3 times longer than *tc'* III–IV. Setae *p'* and *p''* of legs III–IV with 10–11 tines. Setae *cxIII* 2.1–2.6 times shorter than *cxIII2*. Setae *IGIV* present.

Length of setae (8 paratypes): *vi* 30–35; *ve* 30–40; *sci* 110–150; *h* 140–150; *sce* 130–190; *l1* 35–60; *l2* 25–35; *l5* 215–235; *d1* 100–115; *d2* 30; *d5* 35–45; *ic1* 105–115; *ic3* 95–105; *pg1* 145–150; *pg2* 45–60; *pg3* 80–95; *sc3* 30–35; *sc4* 30; *cxIII* 35–55; *cxIII2* 80–105; *tc'* III–IV 40–45; *tc''* III–IV 50–60.

Type material

Female holotype (slide Syr.20.1), paratypes: 10 females, 13 males, 30 nymphs and 4 larvae from quills (secondaries) of *Ficedula hypoleuca* (Pallas, 1764) (Muscicapidae); 20.04.1999; Darłówko Wsch. – Kopań; Poland; leg. M. Skoracki. Holotype and most of paratypes are deposited at UAM, 2 female paratypes and 2 male paratypes at ZIN, 2 female paratypes and 2 male paratypes at SNM.

Additional material: 8 females, 6 males and 5 nymphs from quills (secondaries) of *Ficedula parva* (Bechst., 1794); 04.2001; Świnoujście; leg. G. Kiljan. Whole material is deposited at UAM.

Etymology

This new species is dedicated to Prof. Andrzej Kazmierski (Department of Animal Morphology, A. Mickiewicz University, Poland) a well known acarologist and my friend.

Differential diagnosis

This new species is closely related to *Syringophilopsis turdus* (Fritsch, 1958) described from *Turdus pilaris* (Turdidae) from Germany (Fritsch 1958). In females of both species setae *d4* and *d5* are shorter than *l4* and *l5*; hypostomal apex has 2 pairs of median protuberances; paragenital setae *pg2* are several times shorter than *pg1* and *pg3*. The new species differs from *S. turdus* by the following characters: in females of *S. kazmierski* sp. nov., length ratio of setae *vi:ve* is 1:1; hysterosomal plates are present; paragenital setae *pg1* are 2.3 times longer than *pg2*; all coxae are without punctations. In males length ratio of setae *vi:ve* is 1:1, and of *l1:d2:l2* is 1:1:1 or 1.5:1:1. In females of *S. turdus* length ratio of setae *vi:ve* is 1:2; hysterosomal plates are absent; paragenital setae *pg1* are 4 times longer than *pg2*; all coxae are punctated. In males the length ratio of setae *vi:ve* is 1:1.2–1.5, and of *l1:d2:l2* is 6–8:1:1.

Syringophilopsis rusticus sp. nov. (Figs 9–12)

Female (Figs 9–12): Total body length of holotype 1310 (1275–1340 in 7 paratypes).

Gnathosoma: Hypostomal apex with two pairs of median protuberances (Fig. 11) and two pairs of lips. Each branch of peritremes with 15–16 chambers (Fig. 12). Stylophore rounded posteriorly, 280 (275–290) long.

Idiosoma: Propodosomal plate not divided, well developed, concave on anterior margin and lateral bands, punctated on lateral margins. Bases of setae *vi*, *ve*, *sci* and *d1* situated on lateral bands of propodosomal plate. Length ratio of setae *vi:ve:sci* 1:1.9–2.2:3–3.4. Bases of setae *sce* situated near propodosomal plate. Seta *d1* and *sce* bases situated at the same level. Setae *sci*, *h*, *sce*, *l1*, *l2*, *d1* and *d2* subequal in length. Two small and weakly sclerotized hysterosomal plates present. Distance between bases of setae *l1* and *d2* 1.2 times longer than distance between bases of setae *d2* and *l2*. Pygidial plate well sclerotized, anterior margin indistinct. Genital setae *g1* and *g2* subequal. Setae *pg1* 5.5 times longer than *g1*. All paragenital setae longer than 300. Cuticular striations as in Figures 9 and 10.

Legs: Epimeres I fused to epimeres II in middle part of epimeres II. Coxae I–IV well sclerotized, with sparse punctations. Setae *cxIII2* 1.3–1.5 times longer than *cxIII*. Setae *p'* and *p''* of legs III and IV with 14 tines. Setae *tc'* and *tc''* of legs III–IV subequal. Setae *IGIV* present.

Length of setae and distance between setal bases (7 paratypes): *vi* 145 (145–180); *ve* 300 (290–345); *sci* 465 (455–575); *h* 465 (485–555); *sce* 515 (485–530); *l1* 445 (470–490); *l2* 445 (470–515); *l4* 515 (545–575); *l5* 515 (565–580); *d1* 430 (440–495); *d2* (470–485); *d4* (130–170); *d5* (120–175); *a1* and *a2* (55); *g1* and *g2* (60–70); *ic1* (230–290); *ic3* (240); *pg1* (335–405); *pg2* (325–330); *pg3* (405–475); *sc3* (60–70); *sc4* (60–70); *3b* (160–180); *3c* (235–250); *tc'* III–IV (120–130); *tc''* III–IV (125–145); *l1-d2* 130; *d2-l2* 105.

Male: unknown.

Type material

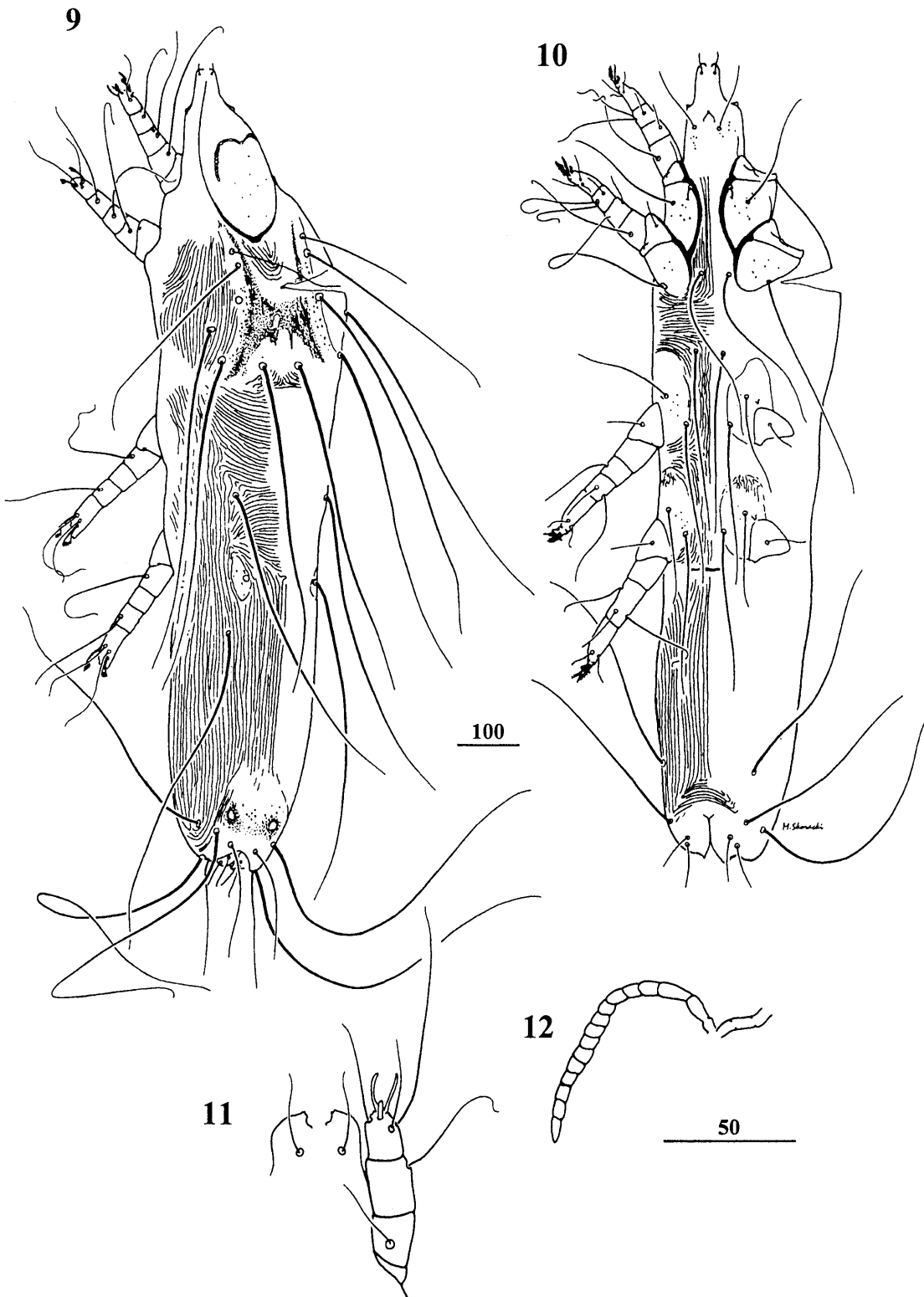
Female holotype (slide Syr.21.1), 15 female paratypes from quills (secondaries) of *Hirundo rustica* L., 1758 (Hirundinidae); 29.07.1999; near Olsztyn, Poland; leg. J. Nowakowski. Holotype and most of paratypes are deposited at UAM, 2 female paratypes at ZIN, 2 female paratypes at SNM.

Etymology

The name *rusticus* refers to the specific name of the host.

Differential diagnosis

This new species is closely related to the previous mentioned new species *S. kazmierski* sp. nov. In both species a hysterosomal plate is present; setae *d4* and *d5* are shorter than *l4* and *l5*; hypostomal apex has 2 pairs of median protuberances; paragenital setae *pg2* are several times shorter than *pg1* and *pg3*. *S. rusticus* sp. nov. differs from *S. kazmierski* sp. nov. by the following characters: in females of *S. rusticus* sp. nov. the



Figs 9–12. *Syringophilopsis rusticus* sp. nov., female: 9 – dorsal view, 10 – ventral view, 11 – gnathosoma in ventral view, 12 – peritreme

length ratio *vi:ve* is 1:1.9–2.2; seta *d1* and *sce* bases are situated at the same level; genital setae *g1* and *g2* are subequal; paragenital setae *pg1* and *pg2* are subequal. In females of *S. kazmierski* sp. nov. the length ratio *vi:ve* is 1:1; seta *sce* bases are situated anterior to the level of seta *d1* bases; genital setae *g2* are 1.4 times longer than *g1*; paragenital setae *pg1* are more than 2 times longer than *pg2*.

Syringophilopsis acrocephali Skoracki, 1999

Until now this species was reported only from its typical host, *Acrocephalus scirpaceus* (Herm., 1804) (Sylviidae) from Poland (Skoracki 1999a) and Russia (Bochkov and Galloway 2001).

Material examined: 8 females, 5 nymphs from quills (secondaries) of *Acrocephalus schoenobaenus* (L., 1758) (new host); 07.2001; Wełtyń, Poland; leg. G. Kiljan.

Two females from quills (secondaries) of *Acrocephalus palustris* (Bechst., 1798) (new host); 04.2001; near Świnoujście, Poland; leg. G. Kiljan.

Syringophilopsis sturni Chirov et Kravtsova, 1995

This species was previously known only from Kirghizia (Chirov and Kravtsova 1995) and Kazakhstan (Bochkov and Mironov 1998) from the type host, *Sturnus vulgaris* L., 1765 (Sturnidae).

Material examined: 10 females, 3 nymphs from quills (secondaries) of *Sturnus vulgaris*; 06.2001; near Świnoujście, Poland; leg. G. Kiljan.

Syringophilopsis kirgizorum Bochkov, Mironov et Kravtsova, 2000

Until now this species was known only from the type host, *Carduelis chloris* (L., 1758) (Fringillidae) and *Rhodospiza obsoleta* (Fringillidae) from Kirghizia (Bochkov et al. 2000)

Material examined: 10 females, 2 males, 11 nymphs from quills (secondaries) of *Carduelis chloris*; 04.2001; near Świnoujście, Poland; leg. G. Kiljan.

One female from quills (secondaries) of *Carduelis carduelis* (L., 1758) (new host); 04.2001; near Świnoujście, Poland; leg. G. Kiljan.

Syringophilopsis turdus (Fritsch, 1958)

This species was originally described from *Turdus pilaris* L., 1758 (Turdidae) from Germany (Fritsch 1958). *S. turdus* was also reported from *T. philomelos* C.L. Brehm, 1831 from Russia (Bochkov and Galloway 2001). In the Polish fauna this quill mite species was previously reported only from *T. iliacus* (Skoracki and Skoracka 1999).

Material examined: 7 females, 1 male, 3 nymphs, 2 larvae from quills (secondaries) of *Turdus pilaris*; 20.10.1997; Mie-rzeja Wiślana, Poland; leg. M. Skoracki.

Eighteen females, 2 males from quills (secondaries) of *Turdus philomelos* (Turdidae); 13.05.1999; Darłówko Wsch. – Kopań, Poland; leg. M. Skoracki.

Syringophilopsis "fringilla" group

Syringophilopsis locustellus sp. nov. (Figs 13–20)

Female (Figs 13–16): Total body length of holotype 690 (655–690 in 10 paratypes).

Gnathosoma: Hypostomal apex with one pair of large, sharp-ended protuberances (Fig. 15) and two pairs of lips. Peritremes M-shaped, each transversal branch with 3–4 chambers, each longitudinal branch with 5–7 chambers (Fig. 16). Stylophore slightly constricted posteriorly, 200 (185–205) long.

Idiosoma: Propodosomal plate weakly sclerotized and divided longitudinally with punctations between bases of setae *ve* and *sci*. Bases of setae *vi*, *ve* and *sci* situated on propodosomal plate, bases of setae *d1* and *sce* set on or near this plate. Length ratio of setae *vi:ve:sci* 1:2:3–3.6. Bases of setae *d1* and *sce* situated at the same level. Hysterosomal plate absent. Distance between bases of setae *l1* and *d2* 1.8 times longer than distance between bases of setae *d2* and *l2*. Pygidial plate weakly sclerotized, with punctations in posterior part. Length ratios of setae *d4:l4* 1:1.4; *d5:l5* 1:1. Genital setae *g2* 2–2.3 times longer than *g1*. Setae *pg1* 1.8–2 times longer than *g2*. Cuticular striations as in Figures 13 and 14.

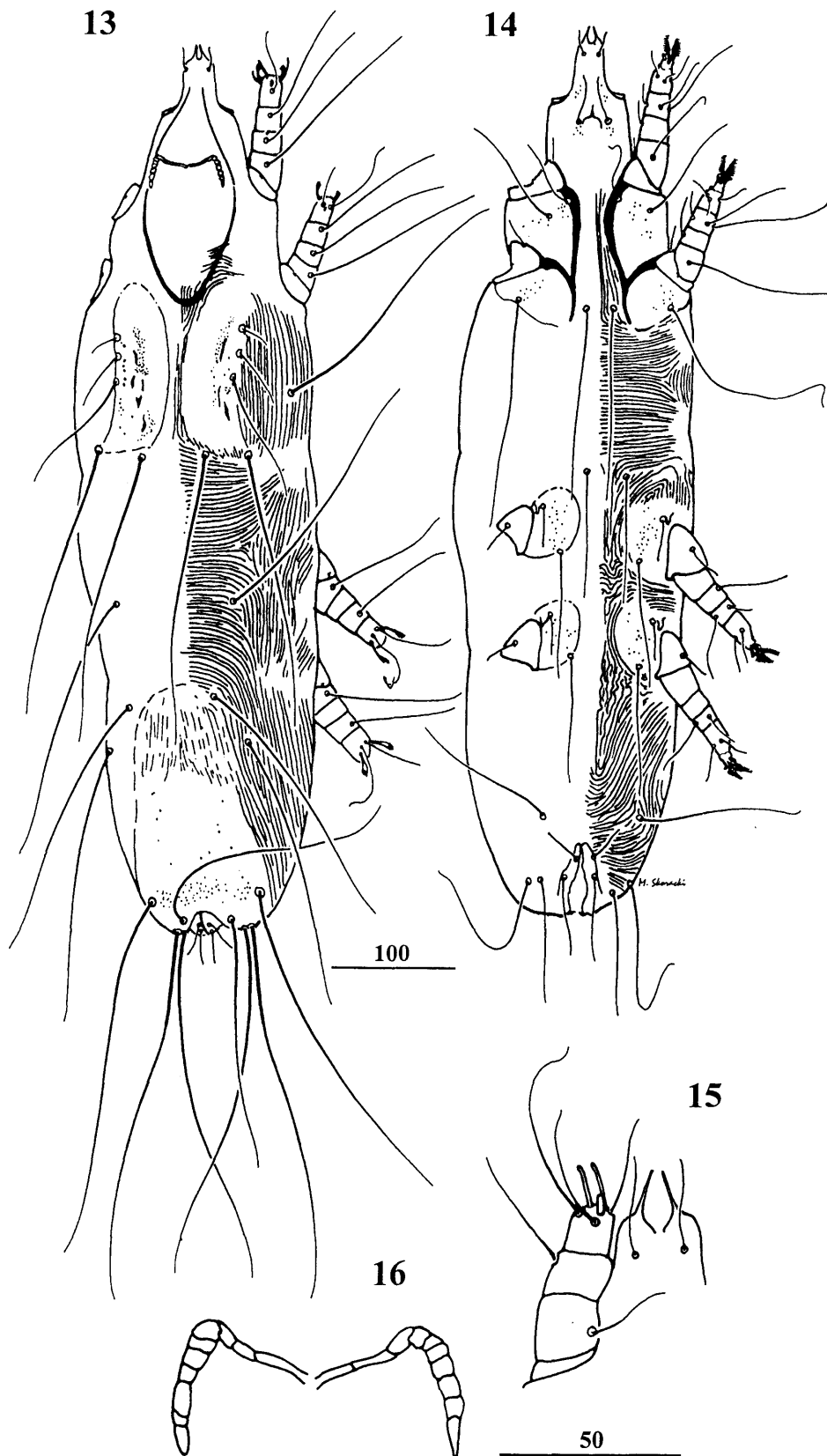
Legs: Epimeres I fused to epimeres II in middle part of epimeres II. Coxae I–IV well sclerotized and punctated. Setae *cxIII2* 3 times longer than *cxIII1*. Setae *p'* and *p''* of legs III and IV with 10–11 tines. Setae *tc'* and *tc''* of legs III–IV subequal. Setae *IGIV* absent.

Length of setae and distance between setal bases (10 paratypes): *vi* 20 (20–25); *ve* 40 (40–45); *sci* 120 (100–165); *h* (220–235); *sce* 225 (210–225); *l1* 215 (215–230); *l2* (230); *l5* (295); *d5* (295); *d1* 215 (225–245); *d2* 225 (215–230); *l4* 285 (280–295); *d4* (210); *a1* and *a2* (35–40); *g1* 25 (25–30); *g2* 70 (65–70); *ic1* (160–165); *ic3* 105 (115); *pg1* 140 (125–135); *pg2* (100–130); *pg3* 170 (155–165); *sc3* 25 (25–30); *sc4* 30 (25–30); *tc'III–IV* 65 (55–65); *tc''III–IV* 65 (55–65); *3b* 30 (30–35); *3c* 85 (95–105); *l1–d2* 60 (80); *d2–l2* 40 (45).

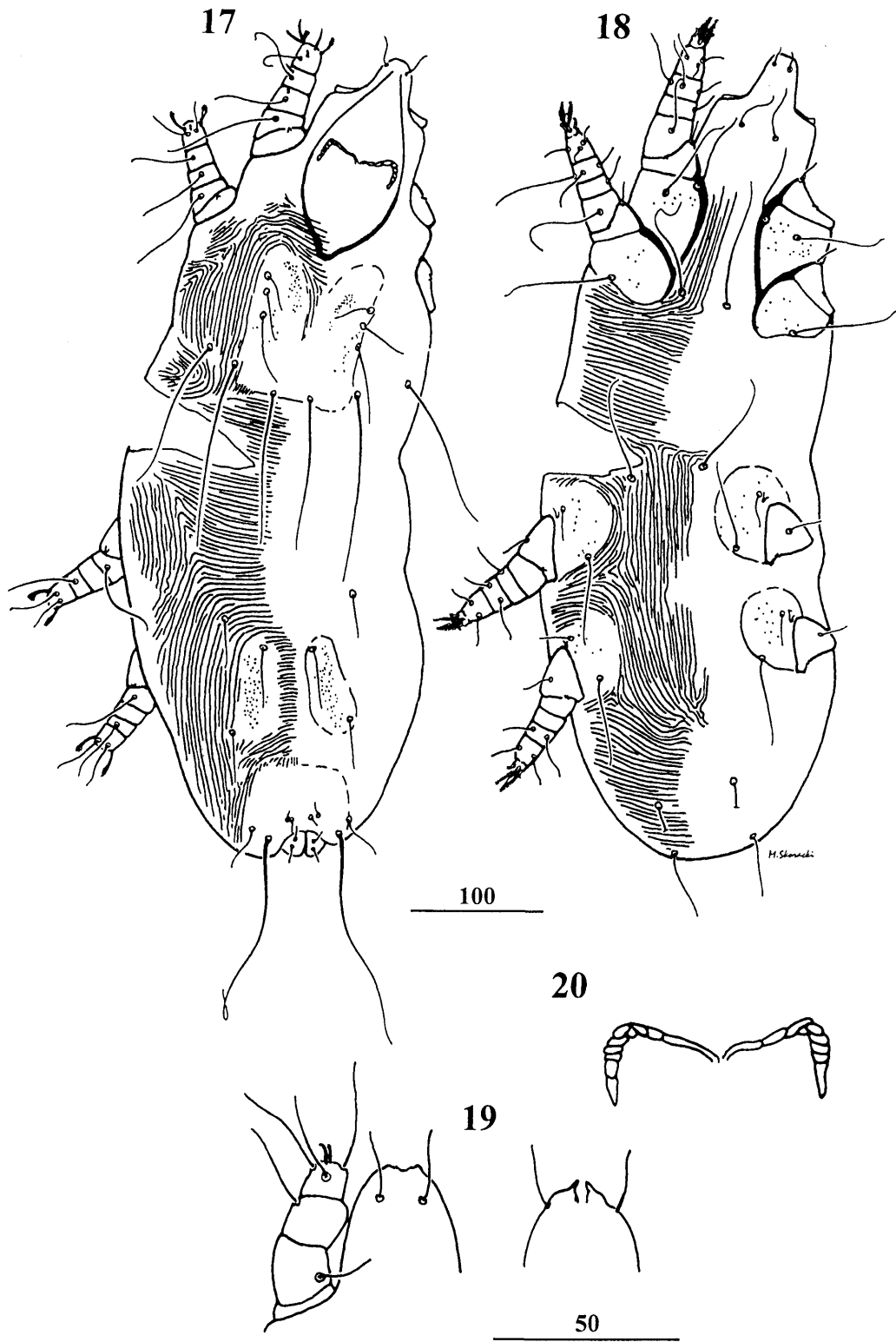
Male (Figs 17–20): Total body length 580 in one paratype.

Gnathosoma: Hypostomal apex as in Figure 19. Each transverse branch of peritremes with 3–5 chambers, each longitudinal branch with 5 chambers (Fig. 20). Stylophore constricted posteriorly, 155 long.

Idiosoma: Propodosomal plate weakly sclerotized, deeply concave on anterior margin and punctated. Lateral and posterior margins of propodosomal plate indistinct. Length ratio of setae *vi:ve:sci* 1:1.5:2.8. Bases of setae *sce* situated anterior to the level of bases of setae *d1*. Hysterosomal plate weakly sclerotized, divided longitudinally bearing bases of setae *d2* and *l2*. Distance between bases of setae *l1* and *d2* 1.3 times shorter than distance between bases of setae *d2* and *l2*. Pygidial plate well sclerotized, without punctations. Setae *l1*, *d2* and



Figs 13–16. *Syringophilopsis locustellus* sp. nov., female: 13 – dorsal view, 14 – ventral view, 15 – gnathosoma in ventral view, 16 – peritremes



Figs 17–20. *Syringophilopsis locustellus* sp. nov., male: 17 – dorsal view, 18 – ventral view, 19 – gnathosoma in ventral view and hypostomal apex in dorsal view, 20 – peritremes

l2 subequal in length. Length ratio of setae *d5:l5* 1:6.4. Two pairs of paragenital setae present. Cuticular striations as in Figures 17 and 18.

Legs: All coxae well sclerotized and punctated. Setae *tc''* III–IV 1.3 times longer than *tc'* III–IV. Setae *cxIII2* 2 times longer than *cxIII1*. Setae *IGIV* absent.

Length of setae and distance between setal bases (1 paratype): *vi* 20; *ve* 30; *sci* 55; *h* 115; *sce* 135; *l1* 40; *l2* 40; *l5* 160; *d1* 110; *d2* 45; *d5* 25; *ic1* 90; *ic3* 75; *pg2* 50; *sc3* 25; *tc'* III–IV 35; *tc''* III–IV 45; *3b* 30; *3c* 60; *l1-d2* 45; *d2-l2* 60.

Type material

Female holotype (slide Syr.22.1), paratypes: 22 females, 1 male, 9 nymphs, 2 larvae from quills (secondaries) of *Locustella naevia* (Bodd., 1783) (Sylviidae); 11.2001; Świnoujście, Poland; leg. G. Kiljan. Holotype and most of paratypes are deposited at UAM, 2 female paratypes at ZIN, 2 female paratypes at SNM.

Additional material: 10 females from quills (secondaries) of *Locustella luscinioides* (Savi, 1824) (Sylviidae); 11.2001; Świnoujście, Poland; leg. G. Kiljan.

Etymology

The name *locustellus* refers to the generic name of the host.

Differential diagnosis

This new species is closely related to *Syringophilopsis troglodytis* (Fritsch, 1958) described from *Troglodytes troglodytes* (Troglodytidae) from Germany (Fritsch 1958). In females of both species hypostomal apex is ornamented by one pair of large median protuberances; setae *d4* are shorter than *l4*, *l5* and *d5*; genital setae *g1* are 2 times shorter than *g2*.

Syringophilopsis locustellus sp. nov. differs from *S. troglodytis* by the following characters: in females of *S. locustellus* sp. nov. the length ratios of setae *vi:ve:sci* and *d4:l4* are 1:2:3–3.6 and 1:1.4, respectively. In females of *S. troglodytis* the length ratios of setae *vi:ve:sci* and *d4:l4* are 1:1:1 and 1:4, respectively.

Syringophilopsis fringilla (Fritsch, 1958) (Figs 21–28)

Remarks: This species was described from *Fringilla coelebs* in Germany (Fritsch 1958). It was reported in Kethley's revision of family Syringophilidae (Kethley 1970) from two hosts: *F. coelebs* from England and *Carduelis carduelis* from Morocco. Bochkov and Mironov (1998) reported this species from type host from Russia, Kaliningrad Prov. Because all of the type material of *S. fringilla* is lost (Kethley 1970), I give below a redescription of this species.

Redescription

Female (Figs 21–24): Total body length of neotype 1215 (1200–1310 in 10 paraneotypes).

Gnathosoma: Hypostomal apex with 1–2 pairs of minute protuberances (Fig. 23) and two pairs of lips. Peritremes M-shaped, each transverse branch with 4–5 chambers, each longitudinal branch with 14 chambers (Fig. 24). Stylophore slightly constricted or rounded posteriorly, 255 (255) long.

Idiosoma: Propodosomal plate well sclerotized and punctated, deeply concave on anterior margin. Bases of setae *vi*, *ve*, *sci* and *d1* situated on propodosomal plate, bases of setae *sce* set on or near this plate. Length ratio of setae *vi:ve:sci* 1:1.5:1.5–1.9. Bases of setae *d1* and *sce* situated at the same level. Two small hysterosomal sclerites present, situated near bases of setae *d2*. Distance between bases of setae *l1* and *d2* 1.6–2 times longer than distance between bases of setae *d2* and *l2*. Pygidial plate small and weakly sclerotized anteriorly, with sparse punctations. Length ratios of setae *d4:d5:l5:l4* 1:1.8:2.7:2.7. Genital setae *g1* and *g2* subequal in length and about 4 times shorter than *pg1*. Setae *pg1* and *pg3* 1.2 times longer than *pg2*. Cuticular striations as in Figures 21 and 22.

Legs: Epimeres I fused to epimeres II in anterior part of epimeres II. Coxae I–IV well sclerotized and punctated. Setae *cxIII2* 1.4 times longer *cxIII1*. Setae *p'* and *p''* of legs III and IV with 15–17 tines. Setae *tc'* and *tc''* of legs III–IV subequal. Setae *IGIV* present.

Length of setae and distance between setal bases (10 paraneotypes): *vi* 215 (205–215); *ve* 315 (310); *sci* 390 (325–395); *h* 390 (395); *sce* 405 (410); *l1* (395); *l2* (455); *l5* 470 (505); *d5* 350 (340–345); *d1* (425); *d2* (425); *l4* 470 (505); *d4* 185 (190); *a1* and *a2* 55 (55); *g1* and *g2* 90 (100); *ic1* (300); *ic3* (200–235); *pg1* 370 (395); *pg2* 285 (325); *pg3* (395); *sc3* 100 (100–105); *sc4* (100); *tc'* III–IV 95 (105–120); *tc''* III–IV 100 (120–125); *3b* 195 (190–200); *3c* (270); *l1-d2* 140 (155–165); *d2-l2* 70 (75–105).

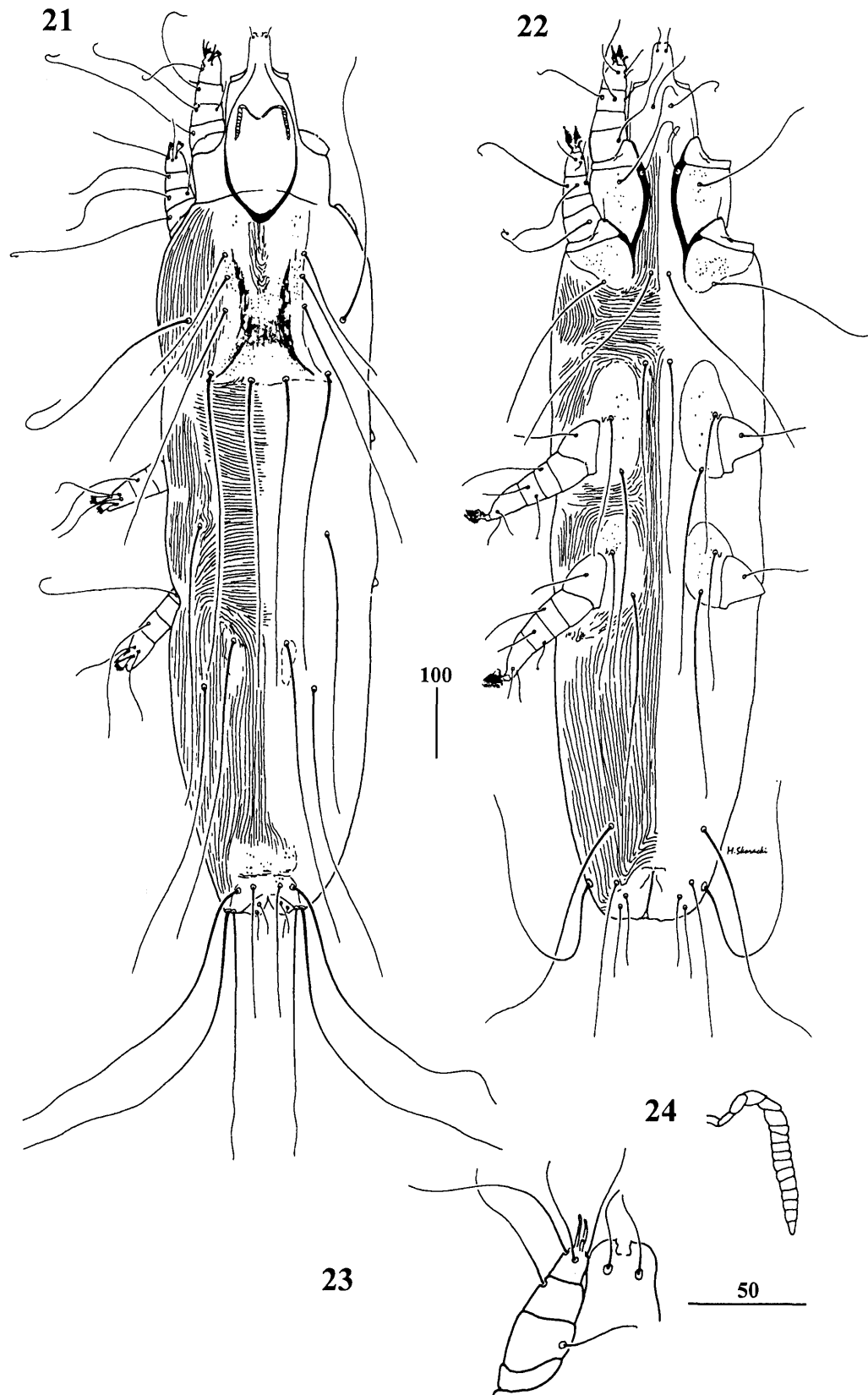
Male (Figs 25–28): Total body length 825–830 in 8 paraneotypes.

Gnathosoma: Hypostomal apex as in Figure 27. Each branch of peritremes with 18–21 chambers (Fig. 28). Stylophore constricted posteriorly, 215–220 long.

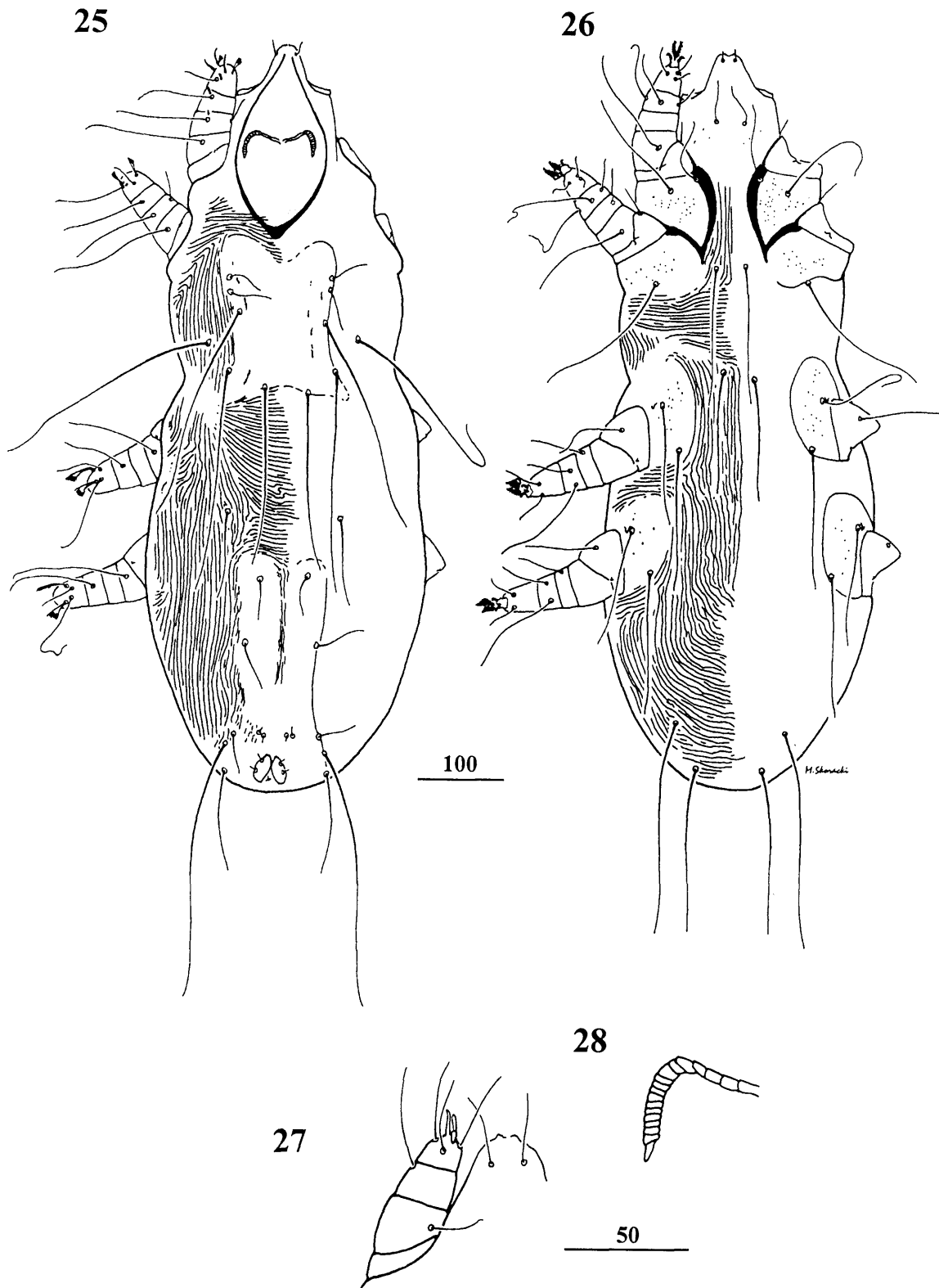
Idiosoma: Propodosomal plate weakly sclerotized on anterior margin. Length ratio of setae *vi:ve:sci* 1:1.2:5–6. Bases of setae *sce* situated anterior to the level of bases of setae *d1*. Hysterosomal plate weakly sclerotized, fused to pygidial plate, deeply concave on anterior margin. Setae *l1* about 2 times longer than *d2* and *l2*. Length ratio of setae *d5:l5* 1:6.8–7.3. Three pairs of paragenital setae present. Setae *pg1* 1.3–1.4 times longer than *pg2*, *pg2* 1.4 times longer than *pg3*. Cuticular striations as in Figures 25 and 26.

Legs: All coxae well sclerotized and punctated. Setae *tc''* III–IV 1.5–1.8 times longer than *tc'* III–IV. Setae *cxIII2* 1.5 times longer than *cxIII1*. Setae *p'* and *p''* of legs III–IV with 11–13 tines. Setae *IGIV* present.

Length of setae and distance between setal bases (8 paraneotypes): *vi* 40–50; *ve* 50–60; *sci* 240–245; *h* 260–285; *sce* 240–245; *l1* 100; *l2* 40; *l5* 290–305; *d1* 210–225; *d2* 50–65; *d5* 40–45; *ic1* 160; *ic3* 140; *pg1* 230; *pg2* 180; *pg3* 130; *sc3*



Figs 21–24. *Syringophilopsis fringilla* (Fritsch, 1958), female: 21 – dorsal view, 22 – ventral view, 23 – gnathosoma in ventral view, 24 – peritreme



Figs 25–28. *Syringophilopsis fringilla* (Fritsch, 1958), male: 25 – dorsal view, 26 – ventral view, 27 – gnathosoma in ventral view, 28 – peritreme

75–95; *sc4* 75–85; *tc*'III–IV 60–70; *tc*"III–IV 90–110; *3b* 95–130; *3c* 145–185; *l1-d2* 60–85; *d2-l2* 75–80.

Material examined

Neotype female (slide Syr.23.1) from quills (primaries) of the type host *Fringilla coelebs* L., 1758 (Fringillidae); 08.05.1999; Darłówko Wsch. – Kopań, Poland; leg. M. Skoracki. Paraneotypes: 22 females, 8 males, 2 nymphs, same data as neotype. Neotype and most part of paraneotypes are deposited at UAM, 2 female paraneotypes and 1 male paraneotype at ZIN, 2 female paraneotypes at SNM.

Syringophilopsis phylloscopi Bochkov, Mironov et Skoracki, 2001

This species was described from *Phylloscopus collybita* (Sylviidae) based on material from France and Poland (Bochkov *et al.* 2001).

Material examined: 9 females, 1 larva from quills (primaries) of *Phylloscopus trochilus* (L., 1758) (new host); 20.04.1999; Darłówko Wsch. – Kopań, Poland; leg. M. Skoracki.

Syringophilopsis aegithali Bochkov, Mironov et Skoracki, 2001

This species was described from *Aegithalos caudatus* (L., 1758) (Aegithalidae) from Russia (Bochkov *et al.* 2001).

Material examined: 2 females, 2 males, 2 nymphs from quills (secondaries) of the type host *Aegithalos caudatus*; 04.2001; Świnoujście, Poland; leg. G. Kiljan.

Syringophilopsis troglodytis (Fritsch, 1958)

This species is known from Germany, Russia and Poland from its type host *Troglodytes troglodytes* (Troglodytidae) (Fritsch 1958, Skoracki 1999b, Bochkov and Galloway 2001). It was also reported from *Troglodytes aedon* from Canada (Bochkov and Galloway 2001).

Syringophilopsis "elongatus" group

Syringophilopsis spinolettus sp. nov. (Figs 29–35)

Female (Figs 29–32): Total body length of holotype 1200 (1145–1270 in 10 paratypes).

Gnathosoma: Hypostomal apex with one pair of minute median protuberances (Fig. 31) and two pairs of lips. Each branch of peritremes with 19 chambers (Fig. 32). Stylophore slightly constricted posteriorly, 270 (265–285) long.

Idiosoma: Propodosomal plate not divided, well sclerotized, deeply concave on anterior margin and slightly concave on lateral margins, punctated in anterior part. Bases of setae *vi*, *ve*, *sci* and *sce* situated on propodosomal plate, *d1* set on or near this plate. Length ratio of setae *vi:ve:sci* 1:1.6–1.9:2.1–2.2. Bases of setae *sce* and *d1* situated at the same level. Hysterosomal plate absent. Distance between bases of setae *l1*

and *d2* 1.9 times longer than distance between bases of setae *d2* and *l2*. Pygidial plate weakly sclerotized, anterior margin indistinct, punctated. Setae *l4*, *l5*, *d4* and *d5* subequal and longer than 400. Length ratio of setae *pg1:pg2:pg3* 1:1:1. Genital setae *g1* and *g2* subequal and about 5 times shorter than paragenital setae. Cuticular striations as in Figures 29 and 30.

Legs: Epimeres I fused to epimeres II in middle part of epimeres II. All coxae well sclerotized and punctated. Setae *cxIII2* very slightly (1.1–1.2 times) longer than *cxIII1*. Setae *p'* and *p''* of legs III and IV with 12–13 tines. Setae *tc*"III–IV very slightly (1.1 times) longer than *tc*'III–IV. Setae *lGIV* present.

Length of setae and distance between setal bases (10 paratypes): *vi* 210 (205–225); *ve* 340 (340–420); *sci* 455 (440); *sce* 515 (430–500); *l1* 455 (430–555); *l2* 425 (440–490); *l3* 435 (430–445); *l4* (545); *l5* (440–510); *d1* (440–445); *d3* 425 (430–550); *d4* 525 (530–595); *d5* (495–515); *a1* 60 (55–60); *a2* 45 (55); *g1* (70–80); *g2* (80); *ic3* 230 (190–230); *pg1* (400); *pg2* (395); *pg3* (405); *sc3* 90 (90–95); *sc4* 75 (75–80); *3b* (190); *3c* (210); *tc*'III–IV 105 (105); *tc*"III–IV 120 (120); *l1-d2* 130 (130); *d2-l2* 75 (75–85).

Male (Figs 33–35): Total body length 895–1015 in 4 paratypes.

Gnathosoma: Each branch of peritremes with 15–18 chambers (Fig. 35). Stylophore constricted posteriorly, 230–250 long.

Idiosoma: Propodosomal plate well sclerotized, without punctations. Length ratio of setae *vi:ve:sci* 1:2.1–2.2:3–3.7. Bases of setae *sce* and *d1* situated at the same level. Hysterosomal plate weakly sclerotized, margins invisible, deeply concave on anterior margin or divided longitudinally. Setae *l1* about 2.3–2.8 times longer than *d2* and *l2*. Distance between bases of setae *l1* and *d2* 1.5 times longer than distance between bases of setae *d2* and *l2*.

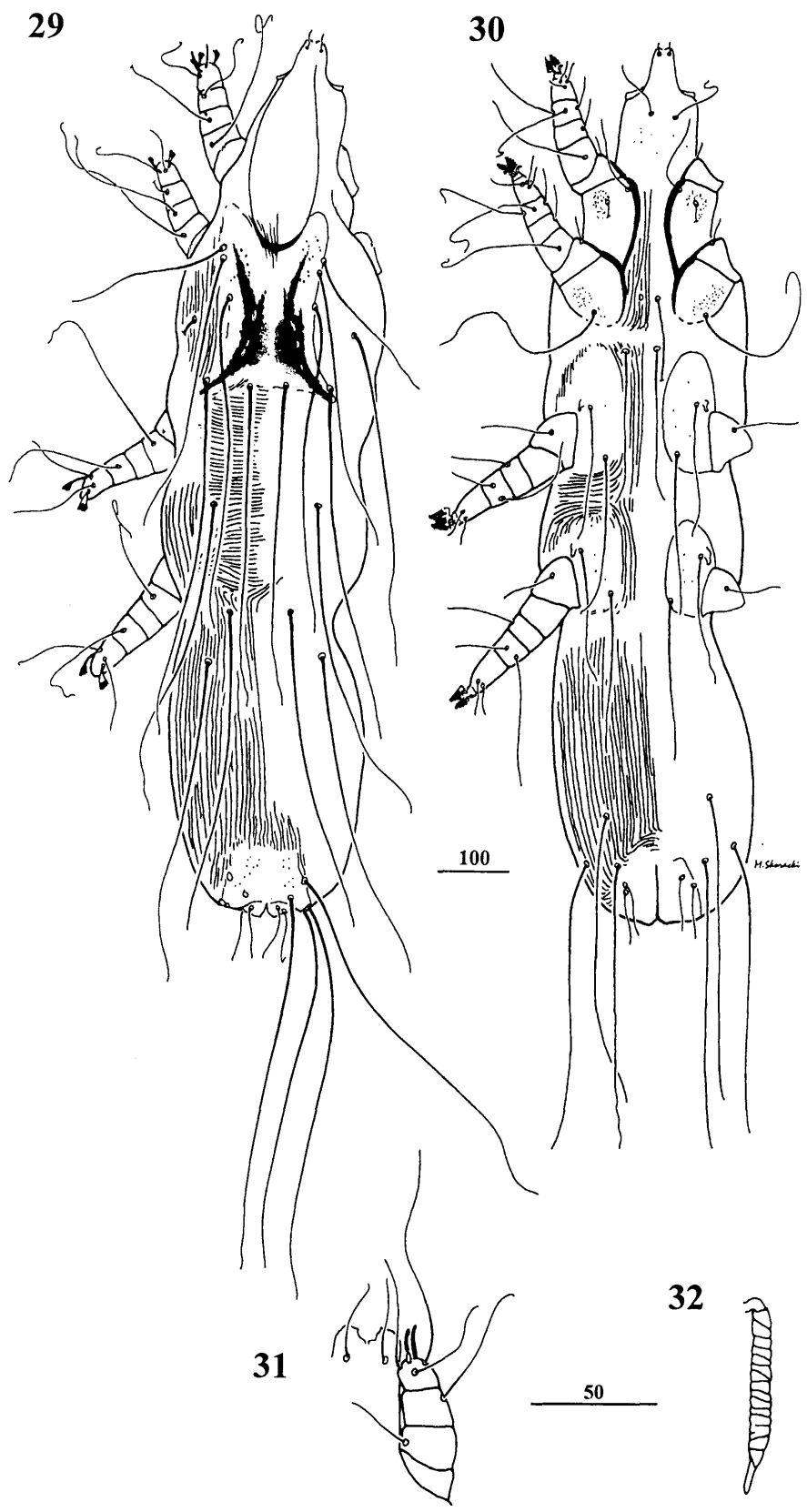
Length ratio of setae *d5:l5* 1:6–7.4. Three pairs of paragenital setae present, setae *pg2* longer than *pg1* and *pg3*, length ratio of setae *pg2:pg3* 3:1. Cuticular striations as in Figures 33 and 34.

Legs: Coxae I–II well sclerotized, III–IV weakly sclerotized. All coxae with sparse or no punctations. Setae *tc*"III–IV 1.3–1.5 times longer than *tc*'III–IV. Setae *cxIII2* 1.7–1.8 times shorter than *cxIII1*. Setae *p'* and *p''* of legs III–IV with 7 tines. Setae *lGIV* present.

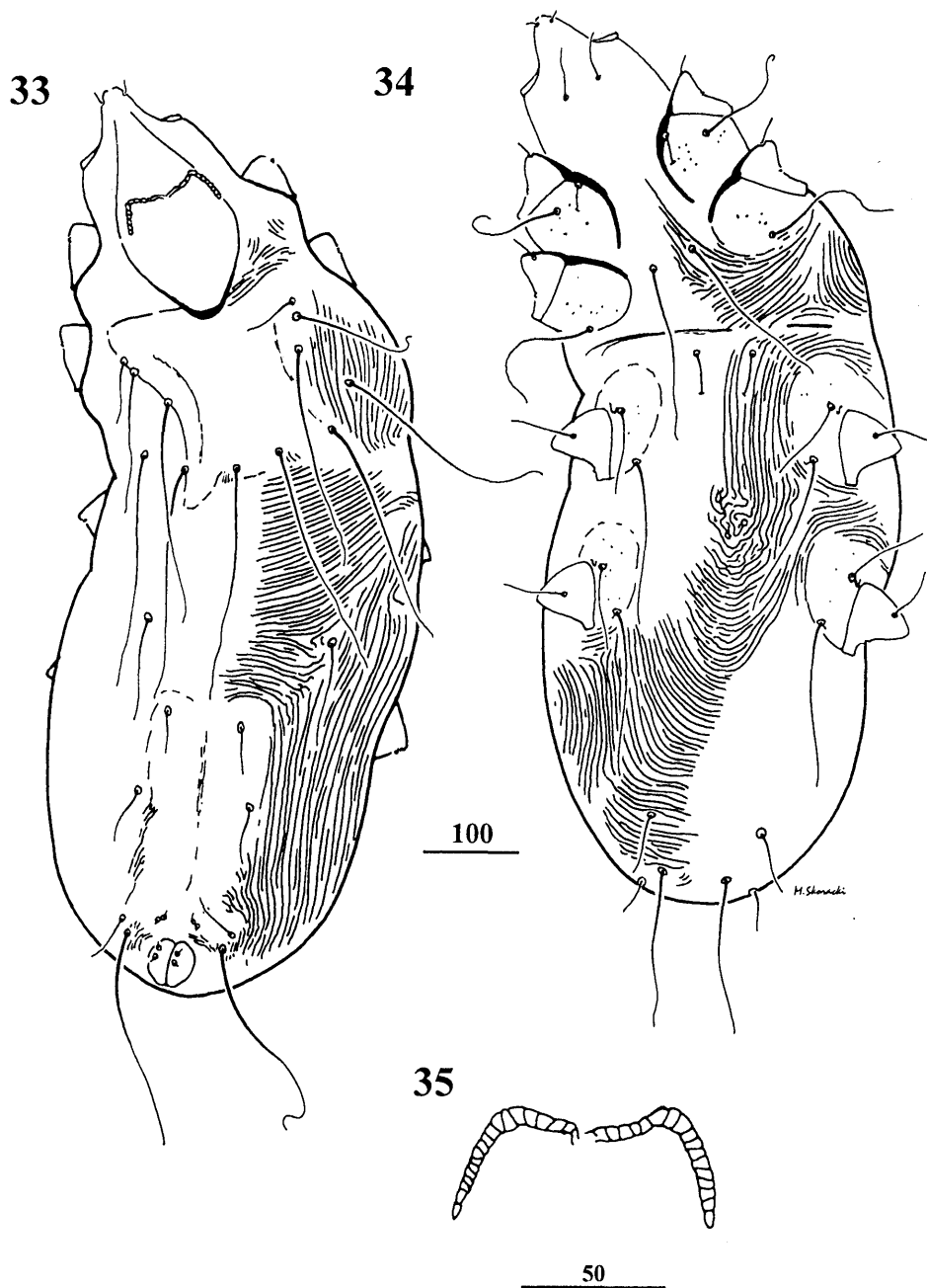
Length of setae and distance between setal bases (4 paratypes): *vi* 65–70; *ve* 140–155; *sci* 200–240; *h* 200–260; *sce* 235–260; *l1* 90–130; *l2* 40–45; *l5* 205–260; *d1* 255; *d2* 30–35; *d5* 35–40; *ic1* 130; *pg1* 40–65; *pg2* 105; *pg3* 30–35; *sc3* 45–55; *sc4* 40–55; *3b* 60–75; *3c* 105–125; *tc*'III–IV 55–60; *tc*"III–IV 70–90; *l1-d2* 100–110; *d2-l2* 65–75.

Type material

Female holotype (slide Syr.24.1), paratypes: 12 females, 4 males, 14 nymphs, 1 larva from quills (secondaries) of *Anthus spinoletta* (L., 1758) (Motacillidae); 21.04.2000; Darłówko Wsch. – Kopań, Poland; leg. W. Busse, M. Skoracki.



Figs 29–32. *Syringophilopsis spinolettus* sp. nov., female: 29 – dorsal view, 30 – ventral view, 31 – gnathosoma in ventral view, 32 – longitudinal branch of peritreme



Figs 33–35. *Syringophilopsis spinolettus* sp. nov., male: 33 – dorsal view, 34 – ventral view, 35 – peritremes

Holotype and most of paratypes are deposited at UAM, 2 female paratypes and 1 male paratype at ZIN, 2 female paratypes at SNM.

Etymology

The name *spinolettus* refers to the specific name of the host.

Differential diagnosis

Syringophilopsis spinolettus sp. nov. is closely related to *S. kristini* Skoracki, Tryjanowski et Hromada, 2002 from

Lanius minor (Laniidae) from Slovakia (Skoracki *et al.* 2002). In both species the hypostomal apex is ornamented by one pair of minute median protuberances; paragenital setae *pg1*, *pg2* and *pg3* are subequal in length; all coxae are punctated; bases of setae *d1* and *sce* are situated at the same level; hysterosomal plate is absent. This new species is distinguished from *S. kristini* by the following characters: in females of *S. spinolettus* sp. nov. lengths of setae *vi* and *ve* are 205–225 and 340–420, respectively; genital setae are 5 times shorter than paragenital setae. In males lengths of setae *pg1*, *pg2* and *ve* are 40–65, 105 and 140–155, respectively. In females of

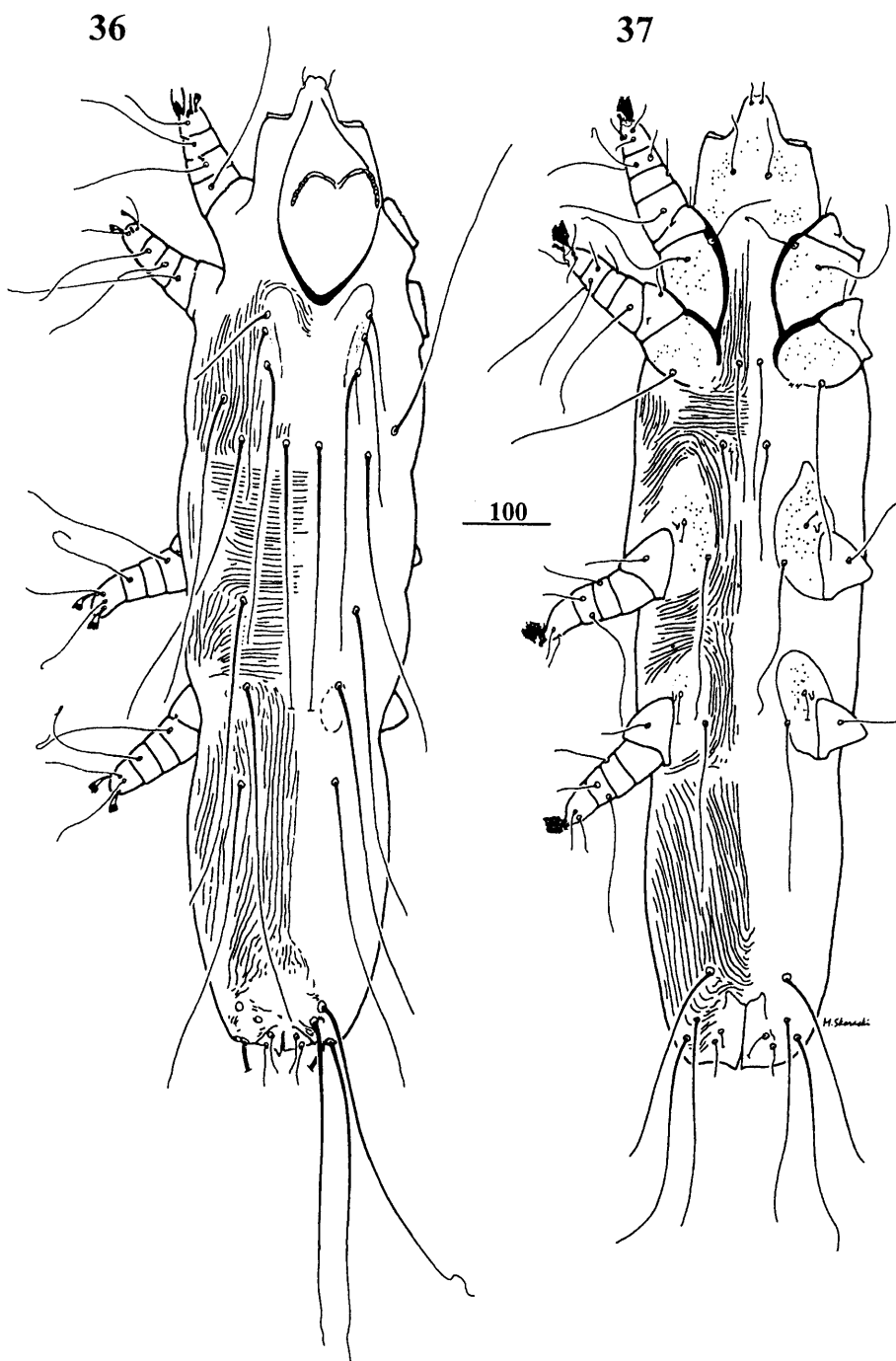
S. kristini lengths of setae *vi* and *ve* are 100–125 and 210–220, respectively; genital setae are 4 times shorter than paragenital setae. In males lengths of setae *pg1*, *pg2* and *ve* are 150–165, 150 and 110–115, respectively.

***Syringophilopsis hirundus* sp. nov.** (Figs 36 and 37)

Female (Figs 36 and 37): Holotype. Total body length 1110.

Gnathosoma: Hypostomal apex with one pair of minute median protuberances and two pairs of lips. Each branch of peritremes with 15 chambers. Stylophore slightly constricted posteriorly.

Idiosoma: Propodosomal plate not divided, weakly sclerotized, punctated near bases of setae *vi*, *ve* and *sci*. Bases of setae *vi*, *ve*, *sci* situated on margins of propodosomal plate, *d1* and *sce* set on or near this plate. Bases of setae *sce* and *d1* sit-



Figs 36 and 37. *Syringophilopsis hirundus* sp. nov., female: 36 – dorsal view, 37 – ventral view

uated at the same level. Setae *sci*, *h*, *sce*, *l1*, *l2*, *d1*, *d2*, *l4*, *d4* and *l5* subequal in length, all longer than 320. Length ratio of setae *vi:ve:sci* 1:1.7:3. Two small hysterosomal sclerites bearing bases of setae *d2* present. Distance between bases of setae *l1-d2* and *d2-l2* subequal. Pygidial plate weakly sclerotized, anterior margin indistinct. Paragenital setae *pg1*, *pg2* and *pg3* subequal in length. Cuticular striations as in Figures 36 and 37.

Legs: Epimeres I fused to epimeres II in middle part of epimeres II. All coxae well sclerotized and punctated. Setae *p'* and *p''* of legs III and IV with 11–12 tines. Setae *tc'* and *tc''* of legs III–IV subequal. Setae *IGIV* present.

Length of setae: *vi* 110; *ve* 190; *sci* 325; *h* 345; *sce* 345; *l1* 350; *l2* 360; *l5* 360; *d2* 380; *l4* 380; *d4* 360; *a1* and *a2* 50; *ic1* 175; *ic3* 145; *pg1* 220; *pg2* 220; *pg3* 245; *sc3* 75; *sc4* 75; *3c* 190; *tc'* III–IV and *tc''* III–IV 100.

Male: unknown.

Type material

Female holotype (slide Syr.25.1) from quills (secondaries) *Hirundo rustica* L., 1758 (Hirundinidae); 04.2001; near Świnoujście, Poland; leg. G. Kiljan. Holotype is deposited at UAM.

Etymology

The name *hirundus* refers to the generic name of the host, *Hirundo rustica*.

Differential diagnosis

This new species is closely related to *S. kristini* Skoracki, Tryjanowski et Hromada, 2002 and *S. spinolettus* sp. nov. by combination of following characters: hypostomal apex with one pair of median protuberances; paragenital setae are subequal in length; coxae I–IV are punctated; bases of setae *d1* and *sce* are situated at the same level; epimeres I are fused to epimeres II in middle part of epimeres II. Females of *S. hirundus* sp. nov. differ from these both species by possessing hysterosomal sclerites and bases of setae *d2* that are situated equidistant between bases of setae *l1* and *l2*. In females *S. kristini* and *S. spinolettus* sp. nov. a hysterosomal plate is absent and bases of setae *d2* are situated closer to *l2* than to *l1*.

Syringophilopsis blaszaki Skoracki et Dabert, 1999

This quill mite species was described from *Anthus trivialis* (Motacillidae) from Poland (Skoracki and Dabert 1999). In 2001 the species *S. blaszaki* was reported also from Russian fauna (Bochkov and Galloway 2001).

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