



Persian J. Acarol., 2020, Vol. 9, No. 3, pp. 213–223.
<http://dx.doi.org/10.22073/pja.v9i3.60299>
Journal homepage: <http://www.biotaxa.org/pja>



Article

New and interesting records of quill mites (Acari: Prostigmata: Syringophilidae) of passerine birds of southwestern Ukraine

Svitlana Ya. Pidhorna¹, Kateryna J. Chernychko¹, Dmytro A. Kivganov¹, Viacheslav A. Trach^{1,2*} and Olga F. Deli¹

1. Odessa I. I. Mechnikov National University, Odessa, Ukraine; E-mails: spb1981@ukr.net, chernichko_katarina@ukr.net, kivganov@onu.edu.ua, vatrach@gmail.com, delijka@ukr.net

2. Ukrainian I. I. Mechnikov Anti-Plague Research Institute of the Ministry of Health of Ukraine, Odessa, Ukraine

* Corresponding author

ABSTRACT

New and interesting records of quill mites (Acari: Prostigmata, Syringophilidae) of passerine birds of southwestern Ukraine are presented. Three genera (*Betasyringophiloidus* Skoracki, 2011; *Neoaulonastus* Skoracki, 2004; *Torotrogla* Kethley, 1970) and 11 species (*Betasyringophiloidus saxicolus* Skoracki, 2011; *B. phoenicurus* Skoracki, 2011; *Neoaulonastus bisetatus* (Fritsch, 1958); *Syringophilopsis acrocephali* Skoracki, 1999; *S. blaszaki* Skoracki & Dabert, 1999; *S. fringillae* (Fritsch, 1958); *S. hirundus* Skoracki, 2004; *S. kazmierski* Skoracki, 2004; *S. rusticus* Skoracki, 2004; *Torotrogla rubeculi* Skoracki, 2004; *T. merulae* Skoracki, Dabert & Ehrnsberger, 2000) are recorded for the first time in Ukraine. New host record for *S. rusticus* Skoracki, 2004 is given. The syringophilid fauna presently recorded from Ukraine is summarized and keyed.

KEY WORDS: Acariformes; ectoparasites; faunistics; Odessa Region; Passeriformes.

PAPER INFO.: Received: 6 March 2019, Accepted: 6 April 2020, Published: 15 July 2020

INTRODUCTION

Members of the family Syringophilidae Lavoipierre, 1953 (Acari: Prostigmata) are permanent monoxenous or oligoxenous parasites that feed on fluids of their bird hosts through the walls of the feather quills in which they reside (Walter *et al.* 2009). Syringophilids are highly specific to host and feather type (primaries, secondaries, coverts, contour feathers), with the thickness and size of a given quill largely determining the mite species complex inhabiting it (Kethley 1971).

Presently, the family includes more than 370 species arranged in 62 genera and two subfamilies, Syringophilinae Lavoipierre, 1953 and Picobiinae Johnston & Kethley, 1973 (Marciniak *et al.* 2019; Zmudzinski *et al.* 2020). Mites of the family Syringophilidae of the Palearctic region was last revised by Skoracki (2011).

The syringophilids fauna of Ukraine is very poorly known. Currently, only seven species and six genera of the family Syringophilidae are reported from Ukraine: *Creagonycha sterna* Kivganov, 1995; *C. totani* (Oudemans, 1904); *Kethleyana gelochelidoni* Kivganov, 1995; *Philoxanthornea*

How to cite: Pidhorna, S.Ya., Chernychko, K.J., Kivganov, D.A., Trach, V.A. & Deli, O.F. (2020) New and interesting records of quill mites (Acari: Prostigmata: Syringophilidae) of passerine birds of southwestern Ukraine. *Persian Journal of Acarology*, 9(3): 213–223.

clarki Kivganov, 1995; *Syringophiloidus hirundinis* Skoracki, Møller & Tryjanowski, 2003; *Syringophilopsis sturni* Chirov & Kravtsova, 1995; *Syringophilus bipectinatus* Heller, 1880 (Kivganov and Sharafat 1995; Bochkov 2000; Skoracki 2011; Chernichko *et al.* 2018). For example, from the territory of neighboring Poland 25 genera and 70 species syringophilids are reported (Zmudzinski *et al.* 2020).

The purpose of this paper is to add new records of mites of the family Syringophilidae associated with passerine birds from Ukraine. The syringophilid fauna presently recorded from this region is summarized and keys to all species of this family are constructed.

MATERIALS AND METHODS

During 2004–2009, we collected mites inhabiting the feather quills of passerine birds in two localities of southwestern Ukraine (Fig. 1):

- Odessa Region, Kiliya District, Zmiinyi Island (45.25 N, 30.20 E) (leg. D. A. Kivganov, V. A. Trach) [1];
- Odessa Region, Limansky District, vicinity of Korsunci, coast of Kuyalnyk Liman (46.58 N, 30.76 E) (leg. D. A. Kivganov, S. Ya. Pidhorna) [2].

The map was created in SimpleMappr online service (www.simplemappr.net).



Figure 1. Areas of collecting material (1 – the Zmiinyi Island; 2 – the coast of Kuyalnyk Liman).

Passerine birds were caught by mist nets. Birds and its feathers were examined with aid of a MBS-9 microscope (LOMO). Mites collected were cleared in alkali solution and slide-mounted in Hoyer's medium. The morphology of mites was studied using the Mikmed-1 microscope (LOMO) equipped with a binocular head AU-12. Measurements are given in micrometers (μm).

About 5000 specimens of birds were observed. Quill mites were registered on 13 species of passerine birds (Passeriformes): Whinchat – *Saxicola rubetra* (Linnaeus, 1758), Black Redstart – *Phoenicurus ochruros* (Gmelin, 1774), Pied Flycatcher – *Ficedula hypoleuca* (Pallas, 1764), Red-breasted Flycatcher – *Ficedula parva* (Pallas, 1764), Blackbird – *Turdus merula* (Linnaeus, 1758), Robin – *Erithacus rubecula* (Linnaeus, 1758) (Muscicapidae), Tree Pipit – *Anthus trivialis* (Linnaeus, 1758) (Motacillidae), Sand Martin – *Riparia riparia* (Linnaeus, 1758), Swallow – *Hirundo rustica*

(Linnaeus, 1758) (Hirundinidae), Great Reed Warbler – *Acrocephalus arundinaceus* (Linnaeus, 1758), Marsh Warbler – *Acrocephalus palustris* (Linnaeus, 1758), Sedge Warbler – *Acrocephalus schoenobaenus* (Linnaeus, 1758) (Sylviidae), Chaffinch – *Fringilla coelebs* (Linnaeus, 1758) (Fringillidae).

Slide-mounted voucher specimens are deposited in the collections of the Department of Zoology, Odessa I. I. Mechnikov National University. Mite taxonomy follows Skoracki (2011), bird taxonomy mainly follows Fesenko and Bokotej (2007).

RESULTS

As a result of examination of syringophilid quill mites collected from passerine birds in southwestern Ukraine, 11 mite species and three genera are recorded for the first time in Ukraine, one species is recorded for the first time in southern Ukraine. Also one new host birds for one mite species is registered.

Family Syringophilidae Lavoipierre, 1953 Genus *Betasyringophiloidus* Skoracki, 2011

Betasyringophiloidus phoenicurus Skoracki, 2011

Hosts and distribution – Black Redstart – *Phoenicurus ochruros* (type host) (Muscicapidae): Poland, Ukraine (**first record**) (Skoracki 2011; Glowska *et al.* 2015).

Material examined – From *Phoenicurus ochruros*, 13.10.2004, 11 females [1]; same host, 16.10.2004, 2 males, 6 females [1].

Differential diagnosis – *Betasyringophiloidus phoenicurus* differs from all congeners occurring in Palaearctic by the following combination of characters: each branch of peritremes with 13–14 chambers; dorsal setae thin; setae *ag1* and *ag2* subequal in length; setae *c1*, *c2* and *d1* shorter than 170; length of stylophore and movable cheliceral digit 150 and 110–115 respectively.

Remarks – This is the first record of this genus and species in Ukraine.

Betasyringophiloidus saxicolus Skoracki, 2011

Hosts and distribution – Whinchat – *Saxicola rubetra* (type host) (Muscicapidae): Poland, Ukraine (**first record**) (Skoracki 2011; Glowska *et al.* 2015).

Material examined – From *Saxicola rubetra*, 08.05.2004, 4 females [1].

Differential diagnosis – *Betasyringophiloidus saxicolus* differs from all congeners occurring in Palaearctic by the following combination of characters: each branch of peritremes with no more than 10–12 chambers; dorsal setae thick; length ratio of setae *vi:si* 1:4.7–5.5; setae *ag3* 1.2–1.3 times longer than *ag1*.

Remarks – This is the first record of this species in Ukraine.

Neaulonastus Skoracki, 2004

Neaulonastus bisetatus (Fritsch, 1958)

Hosts and distribution – Whitethroat – *Sylvia communis* (type host) (Sylviidae): Germany, Poland; Blackcap – *Sylvia atricapilla*: Poland, Russia, Slovakia; Lesser Whitethroat – *Sylvia curruca*: Jordan, Kazakhstan, Poland; Great Reed Warbler – *Acrocephalus arundinaceus* (Acrocephalidae): Poland, Ukraine (**first record**); African reed warbler – *Acrocephalus baeticatus*: Kenya; Blyth's Reed Warbler – *Acrocephalus dumetorum*: Kazakhstan; Aquatic Warbler – *Acrocephalus paludicola*:

Poland; Marsh Warbler – *Acrocephalus palustris*: Kenya; Reed Warbler – *Acrocephalus scirpaceus*: Poland, Slovakia (Skoracki 2004a, 2011; Glowska *et al.* 2015; Klimovičová and Hromada 2014).

Material examined – From *Acrocephalus arundinaceus*, 27.04.2004, 1 male, 5 females [1].

Differential diagnosis – *Neoaulonastus bisetatus* differs from all congeners occurring in Palaearctic by the following combination of characters: propodonotal shield present; setae *f2* 2–3 times longer than *f1*; setae *c1* 1.7–2.6 times longer than *d1*; setae *d1* 85–130 long; lateral branch of peritremes with 6 and more chambers; aggenital setae *ag1* significantly longer than *ag2*; hysteronotal shield present; setae *ag3* longer than 110; length ratio of setae *f1:f2* 1:2.3; length ratio of setae *ag1:ag2:ag3* 1.3–1.4:1:1.5–1.8.

Remarks – This is the first record of this genus and species in Ukraine.

Syringophiloidus Kethley, 1970

Syringophiloidus hirundinis Skoracki, Møller & Tryjanowski, 2003

Hosts and distribution – Swallow – *Hirundo rustica* (type host) (Hirundinidae): Denmark, Italy, Poland, Spain, Ukraine (Skoracki *et al.* 2003; Skoracki 2011; Glowska *et al.* 2015; Zmudzinski and Skoracki 2018).

Material examined – From *Hirundo rustica*, 23.04.2004, 1 male, 5 females [1].

Differential diagnosis – *Syringophiloidus hirundinis* differs from all congeners occurring in Palaearctic by the following combination of characters: medial branch of peritremes with 2–3 elongated chambers; setae *si* distinctly longer than *vi*; setae *ve* at least 1.3 times longer than *vi*; setae *h1* and *f1* subequal in length; propodonotal shield punctate; setae *si* less than 2.5 times longer than *vi*.

Remarks – Previously, *Syringophiloidus hirundinis* have been reported from Ukraine only from the north of Ukraine (Kyiv region) (Skoracki 2011). This is the second record of *S. hirundinis* in Ukraine.

Syringophilopsis Kethley, 1970

Syringophilopsis acrocephali Skoracki, 1999

Hosts and distribution – Reed Warbler – *Acrocephalus scirpaceus* (type host) (Acrocephalidae): Poland, Russia; Marsh Warbler – *Acrocephalus palustris*: Poland, Slovakia, Ukraine (**first record**); Sedge Warbler – *Acrocephalus schoenobaenus*: Egypt, Poland, Slovakia, Ukraine (**first record**) (Skoracki 1999, 2011; Klimovičová and Hromada 2014; Glowska *et al.* 2015).

Material examined – From *Acrocephalus palustris*, 10.05.2004, 1 male, 3 females [1]; from *Acrocephalus schoenobaenus*, 31.04.2004, 2 males, 5 females [1]; same host, 26.09.2010, 8 females [2].

Differential diagnosis – This species is a representative of the *turdi* species group characterized by terminal setae *f1* and *h1* short, *f2* and *h2* long in females. *Syringophilopsis acrocephali* differs from all congeners of *turdi* group occurring in Palaearctic by the following combination of characters: hypostomal apex with 1 pair of protuberances; seta *ve* 4–4.5 times longer than *vi*; setae *ag2* 1.5 times longer than *g1*.

Remarks – This is the first record of this species in Ukraine.

Syringophilopsis blaszaki Skoracki & Dabert, 1999

Hosts and distribution – Tree Pipit – *Anthus trivialis* (type host) (Motacillidae): Poland, Russia, Ukraine (**first record**); Meadow Pipit – *Anthus pratensis*: Slovakia (Skoracki and Dabert 1999; Skoracki 2011; Klimovičová and Hromada 2014; Glowska *et al.* 2015).

Material examined – From *Anthus trivialis*, 10.05.2004, 5 females [1]; same host, 27.04.2005, 21 males, 19 females [1]; same host, 28.04.2005, 8 males, 15 females [1]; same host, 01.05.2005, 4 males, 18 females [1]; same host, 28.05.2005, 4 females [1].

Differential diagnosis – This species is a representative of the *elongatus* species group characterized by terminal setae *fl* and *h1* long, and subequal to *f2* and *h2* in females. *Syringophilopsis blaszaki* differs from all congeners of *elongatus* group occurring in Palaearctic by the following combination of characters: genital setae long, subequal to aggenital setae *ag2* or no more than twice shorter than *ag2*; hysteronotal shields present; fan-like setae *p'* and *p''* of legs III and IV with 12–14 tines; length of setae *ag2* and *g2* 290–300 and 295–305, respectively; pygidial shield distinctly punctate.

Remarks – This is the first record of this species in Ukraine.

Syringophilopsis fringillae (Fritsch, 1958)

Hosts and distribution – Chaffinch – *Fringilla coelebs* (type host) (Fringillidae): Germany, England, Kazakhstan, Poland, Russia, Slovakia, Ukraine (**first record**) (Skoracki 2011; Klimovičová and Hromada 2014; Glowska *et al.* 2015).

Material examined – From *Fringilla coelebs*, 16.04.2005, 2 males, 8 females [1].

Differential diagnosis – This species is a representative of the *fringillae* species group characterized by terminal setae *fl* and *h1* unequal in length in females. Only one species of *fringillae* group, *Syringophilopsis fringillae*, occurring in Palaearctic.

Remarks – This is the first record of this species in Ukraine.

Syringophilopsis hirundus Skoracki, 2004

Hosts and distribution – Swallow – *Hirundo rustica* (type host) (Hirundinidae): England, Kazakhstan, Poland, Ukraine (**first record**) (Skoracki 2004b, 2011; Glowska *et al.* 2015).

Material examined – From *Hirundo rustica*, 28.04.2005, 2 males, 10 females [1].

Differential diagnosis – This species is a representative of the *elongatus* species group characterized by terminal setae *fl* and *h1* long, and subequal to *f2* and *h2* in females. *Syringophilopsis hirundus* differs from all congeners of *elongatus* group occurring in Palaearctic by the following combination of characters: genital setae are short and several times (4–5 times) shorter than setae *ag2*; setae *vi* shorter than 160; hypostomal apex with 2 pairs of protuberances.

Remarks – This is the first record of this species in Ukraine.

Syringophilopsis kazmierski Skoracki, 2004

Hosts and distribution – Pied Flycatcher – *Ficedula hypoleuca* (type host) (Muscicapidae): Poland, Slovakia, Germany, Ukraine (**first record**); Red-breasted Flycatcher – *Ficedula parva*: Poland, Romania, Slovakia, Ukraine (**first record**); Redstart – *Phoenicurus phoenicurus*: Jordan (Skoracki 2004, 2011; Klimovičová and Hromada 2014; Glowska *et al.* 2015; Zmudzinski and Unsoeld 2019).

Material examined – From *Ficedula hypoleuca*, 26.04.2004, 3 males, 2 females [1]; from *Ficedula parva*, 29.04.2004, 13 males, 22 females [1].

Differential diagnosis – This species is a representative of the *turdi* species group characterized by terminal setae *fl* and *h1* short, *f2* and *h2* long in females. *Syringophilopsis kazmierski* differs from all congeners of *turdi* group occurring in Palaearctic by the following combination of characters: hypostomal apex with 2 pairs of protuberances; both genital setae and aggenital setae *ag2* subequal in length or genital setae slightly longer than setae *ag2*; propodonotal setae *vi* and *ve* subequal in length.

Remarks – This is the first record of this species in Ukraine.

Syringophilopsis rusticus Skoracki, 2004

Hosts and distribution – Swallow – *Hirundo rustica* (type host) (Hirundinidae): Poland, Ukraine (**first record**); Sand Martin – *Riparia riparia* (**new host**): Ukraine (**first record**) (Skoracki 2004, 2011; Glowska *et al.* 2015).

Material examined – From *Hirundo rustica*, 11.05.2005, 3 females [1]; *Riparia riparia*, 28.04.2004, 1 male, 1 female [1].

Differential diagnosis – This species is a representative of the *turdi* species group characterized by terminal setae *f1* and *h1* short, *f2* and *h2* long in females. *Syringophilopsis rusticus* differs from all congeners of *turdi* group occurring in Palaearctic by the following combination of characters: hypostomal apex with 2 pairs of protuberances; genital setae *g1* and *g2* shorter than aggenital setae *ag2*.

Remarks – This is the first record of this genus and species in Ukraine.

Torotroglia Kethley, 1970

Torotroglia merulae Skoracki, Dabert & Ehrnsberger, 2000

Hosts and distribution – Blackbird – *Turdus merula* (type host) (Muscicapidae): Jordan, Poland, Russia, Ukraine (**first record**); American Robin – *Turdus migratorius*: USA; Song Thrush – *Turdus philomelos*: Germany, Jordan, Poland; Ring Ouzel – *Turdus torquatus*: Slovakia; Mistle Thrush – *Turdus viscivorus*: Poland, Romania (Skoracki 2011; Glowska *et al.* 2015).

Material examined – From *Turdus merula*, 19.10.2009, 16 males, 18 females [1].

Differential diagnosis – *Torotroglia merulae* differs from all congeners occurring in Palaearctic by the following combination of characters: setae *h1* 1.1–1.3 times longer than *f1* or both pairs subequal in length; setae *h2* 2 or more times longer than *h1*; hysteronotal shields present; bases of setae *d1* situated on hysteronotal shields; setae *l'* of trochanters III extending beyond respective genua; protuberances of hypostomal apex sharp-ended; setae *l'* of trochanters IV extending beyond respective genua; setae *ve* twice as long as *vi*; protuberances of hypostomal apex slender and long.

Remarks – This is the first record of this genus and species in Ukraine.

Torotroglia rubeculi Skoracki, 2004

Hosts and distribution – Robin – *Erithacus rubecula* (type host) (Passeriformes: Muscicapidae): Poland, Russia, Slovakia, Ukraine (**first record**) (Skoracki 2004c, 2011; Klimovičová and Hromada 2014; Glowska *et al.* 2015).

Material examined – From *Erithacus rubecula*, 10.10.2004, 1 male, 7 females [1]; same host, 14.10.2006, 2 females [1].

Differential diagnosis – *Torotroglia rubeculi* differs from all congeners occurring in Palaearctic by the following combination of characters: setae *h1* 1.1–1.3 times longer than *f1* or both pairs subequal in length; setae *h2* two or more times longer than *h1*; hysteronotal shields present; bases of setae *d1* situated on hysteronotal shields; setae *l'* of trochanters III not extending beyond respective genua; total body length less than 1000; hypostomal protuberances short and wide.

Remarks – This is the first record of this species in Ukraine.

CONCLUDING REMARKS

Eighteen species of mites of the family Syringophilidae of nine genera were registered in Ukraine (Table 1). The genus *Syringophilopsis* comprises seven species, genera *Betasyringophiloidus*,

Creagonycha and *Torotroglia* comprises two species each. The genera *Kethleyana*, *Neoaulonastus*, *Philoxanthornea*, *Syringophilus* and *Syringophiloidus* are represented only one species each.

Three genera (*Betasyringophiloidus* Skoracki, 2011, *Neoaulonastus* Skoracki, 2004, *Torotroglia* Kethley, 1970) and 11 species (*Betasyringophiloidus saxicolus* Skoracki, 2011; *B. phoenicurus* Skoracki, 2011; *Neoaulonastus bisetatus* (Fritsch, 1958); *Syringophilopsis acrocephali* Skoracki, 1999; *S. blaszaki* Skoracki & Dabert, 1999; *S. fringillae* (Fritsch, 1958); *S. hirundus* Skoracki, 2004; *S. kazmierski* Skoracki, 2004; *S. rusticus* Skoracki, 2004; *Torotroglia rubeculi* Skoracki, 2004; *T. merulae* Skoracki, Dabert & Ehrnsberger, 2000) are recorded for the first time in Ukraine. New host record for *S. rusticus* Skoracki, 2004 is given.

Table 1. Hosts and habitat of mites of the family Syringophilidae occurring in Ukraine.

Mites species	Hosts in Ukraine	Habitat	References
<i>Betasyringophiloidus phoenicurus</i>	<i>Phoenicurus ochruros</i>	secondary feathers	this study
<i>Betasyringophiloidus saxicolus</i>	<i>Saxicola rubetra</i>	secondary feathers	this study
<i>Creagonycha sterna</i>	<i>Sterna albifrons</i>	primary feathers	Kivganov & Sharafat (1995)
<i>Creagonycha totani</i>	<i>Tringa totanus</i>	secondary feathers	Chernichko <i>et al.</i> (2018)
<i>Kethleyana gelochelidoni</i>	<i>Gelochelidon nilotica</i>	primary feathers	Kivganov & Sharafat (1995)
<i>Neoaulonastus bisetatus</i>	<i>Acrocephalus arundinaceus</i>	secondaries, tertials, coverts and rectrices feathers	this study
<i>Philoxanthornea clarki</i>	<i>Sterna albifrons</i>	secondaries and coverts feathers	Kivganov & Sharafat (1995)
<i>Syringophiloidus hirundinis</i>	<i>Hirundo rustica</i>	secondary and rectrice feathers	this study
<i>Syringophilopsis acrocephali</i>	<i>Acrocephalus palustris</i> , <i>A. schoenobaenus</i>	secondary feathers	this study
<i>Syringophilopsis blaszaki</i>	<i>Anthus trivialis</i>	secondary feathers	this study
<i>Syringophilopsis fringillae</i>	<i>Fringilla coelebs</i>	primary feathers	this study
<i>Syringophilopsis hirundus</i>	<i>Hirundo rustica</i>	secondary feathers	this study
<i>Syringophilopsis kazmierski</i>	<i>Ficedula hypoleuca</i>	secondary feathers	this study
<i>Syringophilopsis rusticus</i>	<i>Hirundo rustica</i> , <i>Riparia riparia</i>	secondary feathers	this study
<i>Syringophilopsis sturni</i>	<i>Sturnus vulgaris</i>	secondary feathers	Skoracki (2011)
<i>Syringophilus bipectinatus</i>	<i>Gallus gallus domesticus</i>	covert, secondary, alular and tertial feathers	Bochkov (2000)
<i>Torotroglia merulae</i>	<i>Turdus merula</i>	secondary and tertial feathers	this study
<i>Torotroglia rubeculi</i>	<i>Erithacus rubecula</i>	secondary feathers	this study

Key to genera of the family Syringophilidae occurring in Ukraine [based on Skoracki (2011)]

1. Setae *vi* absent *Neoaulonastus* Skoracki, 1999
- Setae *vi* present 2
2. Some of leg setae absent 3
- Legs with full complement of setae 5
3. Setae *vsI* absent *Philoxanthornea* Kethley, 1970
- Setae *vsI* present 4
4. Two pairs of pseudanal setae present *Syringophiloidus* Kethley, 1970
- One pair of pseudanal setae present (*ps2* absent) *Betasyringophiloidus* Skoracki, 2011

5. Aggenital series with 4–9 pairs of setae *Torotroglia* Kethley, 1970
 - Two or 3 pairs of aggenital setae present 6
6. Two pairs of aggenital setae present (setae *ag2* absent) *Kethleyana* Kivganov, 1995
 - Three pairs of aggenital setae (*ag1–3*) present 7
7. Peritremes U-shaped *Syringophilus* Heller, 1880
 - Peritremes M-shaped 8
8. Coxal fields I and II similar in size and shape *Creagonycha* Kethley, 1970
 - Coxal fields I and II dissimilar in size and shape *Syringophilopsis* Kethley, 1970

Key to females of the genus *Syringophilopsis* occurring in Ukraine [based on Skoracki et al. (2016)]

1. Setae *f1* and *h1* unequal in length *S. fringillae* (Fritsch, 1958)
 - Setae *f1* and *h1* subequal in length 2
2. Setae *f1* and *h1* long subequal to *f2* and *h2* 3
 - Setae *f1* and *h1* short and several times shorter than *f2* and *h2* 4
3. Genital setae are long and subequal to aggenital setae *ag2* *S. blaszaki* Skoracki & Dabert, 1999
 - Genital setae are short and several times shorter than setae *ag2* *S. hirundus* Skoracki, 2004
4. Hypostomal apex with 2 pairs of protuberances 5
 - Hypostomal apex with 1 pair of protuberances 6
5. Genital setae *g1* and *g2* shorter than aggenital setae *ag2* *S. rusticus* Skoracki, 2004
 - Both genital setae and aggenital setae *ag2* subequal in length or genital setae slightly longer than setae *ag2* *S. kazmierski* Skoracki, 2004
6. Seta *ve* 4–4.5 times longer than *vi*, setae *ag2* 1.5 times longer than *g1* *S.acrocephali* Skoracki, 1999
 - Seta *ve* 1.8–3.5 times longer than *vi*, setae *ag2* 2 or more times longer than *g1* *S. sturni* Chirov & Kravtsova, 1995

Key to females of the genus *Betasyringophiloidus* occurring in Ukraine [based on Skoracki et al. (2016)]

1. Each branch of peritremes with no more than 10–12 chambers, dorsal setae thick *B. saxicolus* Skoracki, 2011
 - Each branch of peritremes with 13–14 chambers, dorsal setae thin *B. phoenicurus* Skoracki, 2011

Key to females of the genus *Creagonycha* occurring in Ukraine [based on Skoracki (2011)]

1. Length ratio of setae *vi:ve* 1:1.2. Fan-like setae *p'* and *p''* of legs III and IV with 16–18 tines *C. sterna* Kivganov, 1995
 - Length ratio of setae *vi:ve* 1:1.7, Fan-like setae *p'* and *p''* of legs III and IV with 10–11 tines *C. totani* (Oudemans, 1904)

Key to females of the genus *Torotroglia* occurring in Ukraine [based on Skoracki et al. (2016)]

1. Setae *l'* of trochanters III not extending beyond respective genua, hypostomal protuberances short

- and wide *T. rubeculi* Skoracki, 2004
 – Setae *l'* of trochanters III extending beyond respective genua, hypostomal protuberances long and slender *T. merulae* Skoracki, Dabert & Ehrnsberger, 2000

REFERENCES

- Bochkov, A.V. (2000) *Syringophilus numidae* sp. n., a new species of quill mites (Acarina: Syringophilidae) ex *Numida meleagris* (Galliformes: Phasianidae) from South Africa. *Acarina*, 8(2): 103–104.
- Chernichko, K.Y., Kivganov, D.A., Pidgorna, S.Ya. & Deli, O.F. (2018) Taxonomic structure of ectoparasites of waders nesting on the Azov-Black Sea coast of Ukraine. *Branta: Transactions of the Azov-Black Sea Ornithological Station*, 21: 82–94 (In Ukrainian with English summary). DOI: 10.15407/branta2018.21.082
- Fesenko, H.V. & Bokotej, A.A. (2007) *The annotated list of the Ukrainian scientific names of the bird species belonging to the fauna of Ukraine (with characteristics of status of the species)*. Kyiv-L'viv, 112 pp. (In Ukrainian).
- Fritsch, W. (1958) Die milbengattung *Syringophilus* Heller, 1880 (subordo Trombidiformes, Fam. Myobiidae Megnin, 1877). *Zoologische Jahrbucher Systematik*, 86: 227–234.
- Głowska, E., Chrzanowski, M. & Kaszewska, K. (2015) Checklist of the quill mites (Acariformes: Syringophilidae) of the World. *Zootaxa*, 3968(1): 1–81. DOI: 10.11646/zootaxa.3968.1.1
- Kethley, J.B. (1970) A revision of the family Syringophilidae (Prostigmata: Acarina). *Contributions of the American Entomological Institute*, 5: 1–76.
- Kethley, J.B. (1971) Population regulation in quill mites (Acari: Syringophilidae). *Ecology*, 52: 1113–1118.
- Kivganov, D.A. & Sharafat, G.S. (1995) Review of the family Syringophilidae (Acari) with the description of new genera and species. *Zoologicheskii Zhurnal*, 74(4): 82–91 (In Russian with English summary).
- Klimovičová, M. & Hromada, M. (2014) New hosts and localities of quill mites (Acari: Syringophilidae) parasitising birds in Slovakia. *Acta Universitatis Prešovensis, Folia Oecologica*, 11: 31–42.
- Marciniak, N., Skoracki, M. & Hromada, M. (2019) Quill mites of the family Syringophilidae (Acariformes: Prostigmata) associated with Cockatoos (Psittaciformes: Cacatuidae). *Zootaxa*, 4565(2): 190–200. DOI: 10.11646/zootaxa.4565.2.3
- Skoracki, M. (1999) New genus and species of Syringophilidae from Eurasian Reed Warbler, *Acrocephalus scirpaceus* (Sylviidae: Passeriformes) (Acari: Prostigmata). *Genus*, 10: 155–162. DOI: 10.14411/fp.2002.057.
- Skoracki, M. (2002) Three new species of the ectoparasitic mites of the genus *Syringophiloidus* Kethley, 1970 (Acari: Syringophilidae) from passeriform birds from Slovakia. *Folia Parasitologica*, 49: 305–313. DOI: 10.14411/fp.2002.057
- Skoracki, M. (2004a) A new name for *Dissonus* Skoracki, 1999 not Wilson, 1906 (Acari: Prostigmata: Syringophilidae). *Genus*, 15: 445–446.
- Skoracki, M. (2004b) Quill mites of the genus *Syringophilopsis* (Acari, Syringophilidae) from passeriform birds of Poland with descriptions of five new species. *Acta Parasitologica*, 49: 45–62.
- Skoracki, M. (2004c) New data on systematics of the quill mites of the genus *Torotroglia* Kethley, 1970 (Acari: Syringophilidae). *Belgian Journal of Entomology*, 6: 303–314.

- Skoracki, M. (2011) Quill mites (Acari: Syringophilidae) of the Palaearctic region. *Zootaxa*, 2840: 1–414.
- Skoracki, M. & Dabert, J. (1999) A new species of the genus *Syringophilopsis* Kethley, 1970 (Acari: Prostigmata: Syringophilidae) from the Tree Pipit *Anthus trivialis* (Passeriformes: Motacillidae). *Acarina*, 7: 89–92.
- Skoracki, M., Dabert, J. & Ehrnsberger, R. (2000) A new quill mite (Acari: Syringophilidae) from the Blackbird. *Osnabrucker Naturwissenschaftliche Mitteilungen*, 26: 191–198.
- Skoracki, M., Hendricks, S.A. & Spicer, G.S. (2011) Systematics of the genus *Syringophilopsis* Kethley, 1970 (Acari: Prostigmata: Syringophilidae) with description of three new species from North American passerines. *Zootaxa*, 2793: 1–22.
- Skoracki, M., Møller, A.P. & Tryjanowski, P. (2003) A new species of parasitic mites of the genus *Syringophiloidus* Kethley, 1970 (Acari: Syringophilidae) from the Barn Swallow *Hirundo rustica* Linnaeus, 1758. *Parasite*, 10: 17–20.
DOI: 10.1051/parasite/2003101p17
- Skoracki, M., Spicer, G.S. & OConnor, B.M. (2016) A systematic review of the subfamily Syringophilinae (Acari: Syringophilidae) of the Nearctic region. Part 1: quill mites associated with passerines (Aves: Passeriformes). *Zootaxa*, 4084: 451–494.
DOI: 10.11646/zootaxa.4084.4.1
- Walter, D.E., Lindquist, E.E., Smith, I.M., Cook, D.R. & Krantz, G.W. (2009) Order Trombidiformes. In: Krantz, G. W. & Walter, D. E. (Eds.), *A manual of acarology*, 3rd edition. Texas Tech University Press, Lubbock, pp. 233–420.
- Zmudzinski, M. & Unsoeld, M. (2019) Quill mites (Acariformes: Syringophilidae) parasitizing birds in Germany: New host records and descriptions of two new species from *Limosa lapponica* (L.) (Aves: Scolopacidae). *Systematic and Applied Acarology*, 24(3): 362–376.
DOI: 10.11158/saa.24.3.3
- Zmudzinski, M., Skoracki, M. & Sikora, B. (2020) *An updated check-list of quill mites of the family Syringophilidae (Acariformes: Prostigmata)*. Available from: <https://sites.google.com/site/syringophilidae/> (Accessed on 30 February 2020).

COPYRIGHT

Pidhorna *et al.* Persian Journal of Acarology is under a free license. This open-access article is distributed under the terms of the Creative Commons-BY-NC-ND which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original author and source are credited.

گزارش‌های جدید و جالب از کنه‌های پر (Acari: Prostigmata: Syringophilidae) گنجشک از جنوب غربی اوکراین

سویتلانا یا. پیدهورنا، کاترینا جی. چرچیچکو، دمیترو ا. کیاوگانوو، ویاچسلاو ا. تراچ^۱ و اُلگا اف. دلی^۱

۱. دانشگاه ملی اُدسا آی. آی. مچنیکوو، اُدسا، اوکراین؛ رایانامه‌ها: *spb1981@ukr.net*، *chernichko_katarina@ukr.net*، *delijka@ukr.net*، *vatrach@gmail.com*، *kivganov@onu.edu.ua*

۲. موسسه پژوهشی آنتی-پلاگ آی. آی. مچنیکوو اوکراینی وزارت بهداشت اوکراین، اُدسا، اوکراین.

* نویسنده مسئول

چکیده

گزارش‌های جدید و جالب از کنه‌های پر (Acari: Prostigmata, Syringophilidae) گنجشک از جنوب غربی اوکراین ارایه می‌شود. سه جنس (11 گونه) (*Torotroglia Kethley*, 1970؛ *Neoaulonastus Skoracki*, 2004؛ *Betasyringophiloidus Skoracki*, 2011) و ۱۱ گونه *Neoaulonastus bisetatus* (Fritsch، *B. phoenicurus* Skoracki, 2011؛ *Betasyringophiloidus saxicolus* Skoracki, 2011) *S. fringillae* (Fritsch، *S. blaszaki* Skoracki & Dabert, 1999؛ *Syringophilopsis acrocephali* Skoracki, 1999؛ 1958) *Torotroglia rubeculi*؛ *S. rusticus* Skoracki, 2004؛ *S. kazmierski* Skoracki, 2004؛ *S. hirundus* Skoracki, 2004؛ 1958) برای نخستین بار از اوکراین گزارش می‌شوند. گزارش میزبانی جدید برای *S. rusticus* Skoracki, 2004 ارایه می‌شود. فون کنه‌های سیرینگوفیلید که تا کنون از اوکراین گزارش شده خلاصه و کلید شناسایی آنها ارایه می‌شود.

واژگان کلیدی: کنه‌های آکاریفرم؛ انگل‌های بیرونی؛ فونستیک؛ منطقه اُدسا؛ پسریرفرم‌ها.

اطلاعات مقاله: تاریخ دریافت: ۱۳۹۸/۱۲/۱۶، تاریخ پذیرش: ۱۳۹۹/۱/۱۸، تاریخ چاپ: ۱۳۹۹/۴/۲۵