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Quill mites of the family Syringophilidae LAVOIPERRE, 1953 parasitic on birds in England (Acari: Cheyletoidea)

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ABSTRACT. Four additional species of quill mites of the family Syringophilidae LAVOIRPIERRE are recorded from England. This includes one new species, *Torotrogla modularis* n. sp., which parasitizes the dunnoek *Prunella modularis* (Prunellidae, Passeriformes).

Key words: acarology, taxonomy, new records, Syringophilidae, ectoparasites, quill mites, new species, England.

INTRODUCTION

Syringophilid mites are parasites living and reproducing within the quills of the remiges, retrices, coverts and body feathers of birds. They feed on the fluids of the soft tissue of their hosts by piercing the quill wall with their styletiform chelicerae (KETHLEY 1971, CASTO 1974). The world fauna currently comprises more than 140 species assigned to 35 genera and two subfamilies (BOCHKOV et al. 2004; SKORACKI & SIKORA 2004). Two species have been previously recorded in England. These are: *Syringophilopsis fringilla* (FRITSCH, 1958) from the type host, chaffinch *Fringilla coelebs*, and *Syringophiloides minor* (BERLESE, 1887) from the type host, house sparrow *Passer domesticus* (KETHLEY 1970). The present paper contains a description of a new species *Torotrogla modularis* sp. nov. and new records of syringophilid mites in the English fauna.

MATERIAL AND METHODS

The mite material used in the present study was collected from birds provided by local ornithologists. Mites were mounted on micro-slides in a polyvinyl lactophenol medium and examined under phase contrast with a Zeiss Photomicroscope II. The nomenclature of idiosomal setae follows FAIN (1979) in the version adapted for the family Syringophilidae (BOCHKOV & MIRONOV 1998) and the chaetotaxy for the legs is that of GRANDJEAN (1944). The Latin names of the birds follow HOWARD and MOORE (1980). All measurements, including scale bars, are given in micrometers (μm). Abbreviations of locations where the materials are deposited: Department of Animal Morphology, A. Mickiewicz University, Poznań, Poland (UAM), Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia (ZISP), Zoologische Staatssammlung München, Germany (ZSM).

RESULTS

Family Syringophilidae LAVOPIERRE, 1953
Subfamily Syringophilinae LAVOPIERRE, 1953

***Torotrogla modularis* n. sp.**

ETYMOLOGY

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

DIFFERENTIAL DIAGNOSIS

Torotrogla modularis n. sp. is closely related to *Torotrogla rubeculi* SKORACKI, 2004 described from *Erithacus rubeculi* (L.) (Passeriformes: Turdidae) from Poland (SKORACKI 2004b). In both species, the hysterosomal and pygidial shields are present.

The new species differs from *T. rubeculi* by the following characters. In females of *T. modularis* n. sp. the hypostomal protuberances are short and blunt. The propodosomal shield is punctate. Setae *ve* are longer than 90. Length ratio of setae *vi:ve:sci* is 1:1.5:2.7. Length of setae *ll* is less than 150. Coxae have punctate ornamentation. In females of *T. rubeculi* the hypostomal protuberances are small and sharp-ended. The propodosomal shield is without punctate ornamentation. Setae *ve* are shorter than 90. Length ratio of setae *vi:ve:sci* is 1:1.1–1.2:2.2–2.5. Setae *l2* are over 150. Coxae are without punctate ornamentation.

DESCRIPTION

Female: Total body length of holotype 938 (882–946 in paratypes). *Gnathosoma*: Hypostomal apex ornamented with a pair of blunt protuberances (Fig. 5). Chelicerae dentate, each with three teeth. Each transverse branch of peritremes with 3–4 chambers, each longitudinal branch with 5–7 chambers (Fig. 6). Stylophore constricted posteriorly, not extending beyond propodosomal shield, 194 (192–210) long. *Idiosoma*: Propodosomal shield entire and punctate, concave on anterior margin. Setae *vi*, *ve*, *sci* and *dl*

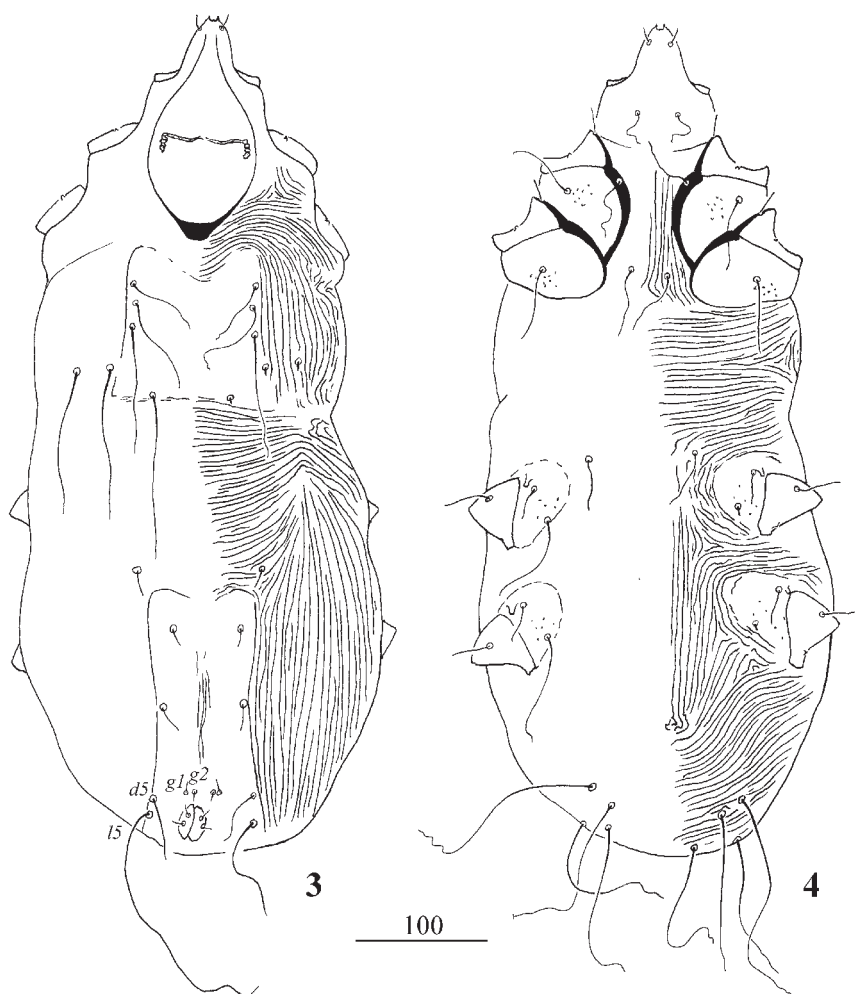
on the plate. Length ratio of setae *vi:ve:sci* 1:1.5:2.7. Pygidial plate and a pair of small plates near bases of setae *d2* present. Seta *d2* nearer to *l2* than *l1*. Cuticular striations as in figs. 1 and 2. *Legs*: All coxae punctated. Fan-like setae *p'* and *p''* of legs III and IV with 8-9 tines (Fig. 7). Length of setae and distances between setal bases: *vi* 60 (55-65); *ve* 95 (90-110); *sci* 170 (160-180); *h* 170 (170-225); *sce* 165 (160-195); *l1* 135 (135-145); *l2* 140 (160-170); *l4* 355 (300-400); *l5* 445 (350-485); *d1* 220 (220-285); *d2* 155 (140-160); *d4* 60 (75-85); *d5* 40 (40-60); *a1* 25 (25-40); *a2* 25 (25-35); *g1* 40 (25-35); *g2* 20 (20-30); *cxIII1* 55 (45-55); *cxIII2* 75 (65-85); *sc3* 45 (40-55); *sc4* 35 (35-50); *l1-d2* 120 (85-140); *d2-l2* 90 (75-95).

Male: Total body length 650-670. *Gnathosoma*: Hypostomal apex ornamented with a pair of short and blunt protuberances (Fig. 8). Each transverse branch of peritremes with 3-5 chambers, each longitudinal branch with 4-6 chambers (Fig. 9). Chelicera,



1, 2. *Torotrogla modularis* n. sp., female: 1 - dorsal view; 2 - ventral view

140 long. Stylophore constricted posteriorly, 165-170 long. *Idiosoma*: Propodosomal shield entire and punctate, concave on anterior margin, weakly sclerotized, margins invisible. Setae *vi*, *ve*, *sci* and *d1* on the shield. Length ratio of setae *vi*:*ve*:*sci* 1:2-2.3:3.2-4. Setae *sci* about 1.6-2 times longer than setae *ve*. Hysterosomal shield fused to pygidial shield, punctated, bases of setae *d2* and *l2* on the shield. Setae *l1*, *d2* and *l2* subequal in the length. Bases of setae *g1* and *g2* at the same level. Cuticular striations as in figs. 6 and 7. *Legs*: All coxae punctated. Fan-like setae *p'* and *p''* of legs III and IV with 7-8 tines (Fig. 10). Length of setae and distances between setal bases: *vi* 30-45; *ve* 55; *sci* 100-110; *h* 75-90; *sce* 95; *l1* 20; *l2* 15-20; *l5* variable 80-185; *d5* 30-40; *d1* 95-110; *d2* 20; *cxIII1* 25-35; *cxIII2* 70; *sc3* 20; *sc4* 15-20.



3, 4. *Torotrogla modularis* n. sp., male: 3 - dorsal view; 4 - ventral view

TYPE MATERIAL

Female (holotype) and paratypes: 23 females, 2 males, 6 nymphs and 7 larvae from secondaries of the dunnoek *Prunella modularis* (L.) 1758 (Passeriformes: Prunellidae); England, West Yorkshire; 27.02.2005; leg. B. NATTRESS. Holotype and most of paratypes are deposited at UAM except 1 female and 1 male paratype at ZISP, 2 female at ZSM.

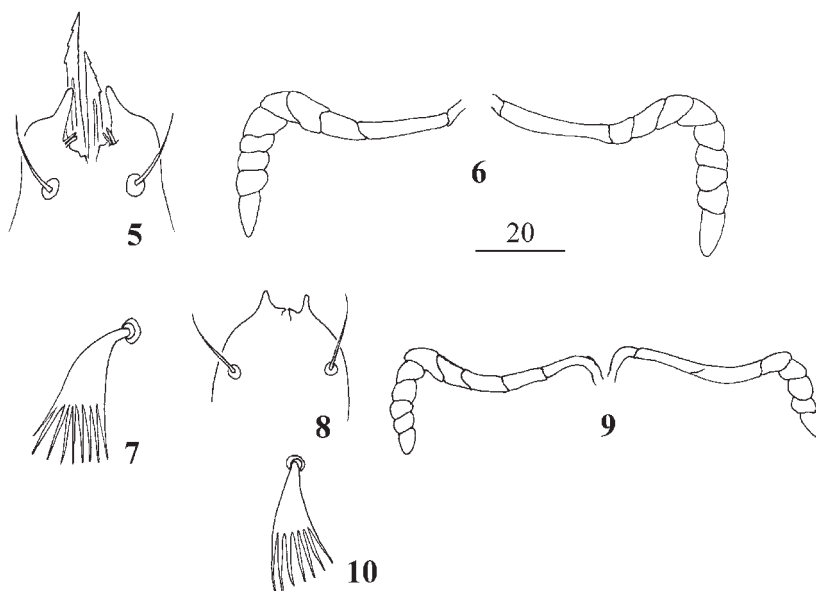
***Syringophilopsis kirgizorum* BOCHKOV, MIRONOV et KRAVTSOVA 2000**

This species is known from three fringillid species (Fringillidae): the greenfinch *Carduelis chloris* (L.) (type host) from Kirghizia and Poland, the goldfinch *C. carduelis* (L.) from Poland and the desert finch *Rhodospiza obsoleta* (Licht.) from Kirghizia (BOCHKOV et al. 2000; SKORACKI 2004). It has now been recorded from the type host in England.

MATERIAL EXAMINED: 3 females from quills (primaries and coverts) of the greenfinch, *Carduelis chloris* (L.) (Passeriformes: Fringillidae); England, West Yorkshire, near Leeds; 11.2005; leg. B. NATTRESS. Material is deposited in the author's collection.

***Syringophilopsis hirundus* SKORACKI, 2004**

This species was first described from the swallow *Hirundo rustica* L. (Hirundinidae) from Poland (SKORACKI 2004a). It has now been recorded from the type host in England.



5-10. *Torotrogla modularis* n. sp., female: 5 - hypostomal apex; 6 - peritremes; 7 - fan-like seta of legs III. Male: 8 - hypostomal apex; 9 - peritremes; 10 - fan-like seta of legs III

MATERIAL EXAMINED: 4 females, 3 nymphs from quills (secondaries) of the swallow, *Hirundo rustica*; England, North Yorkshire, near York; 08.1993; leg. B. NATTRESS. Material is deposited in the author's collection.

***Neosyringophilopsis troglodytis* (FRITSCH, 1958)**

This species is known from two hosts: from the wren *Troglodytes troglodytes* (L.) (Troglodytidae) (type host) from Germany and Poland (FRITSCH 1958; SKORACKI 2004a) and from the house wren *T. aedon* (VIEILLOT) from Canada (BOCHKOV & GALLOWAY 2001). It has now been recorded from England.

MATERIAL EXAMINED: 2 females, 1 nymph from quills (secondaries) of the wren, *Troglodytes troglodytes*; England, West Yorkshire near Keighley; 11. 2005; leg. B. NATTRESS. Material is deposited in the author's collection.

***Syringophiloidus minor* BERLESE, 1887**

This species is known from four hosts: from the house sparrow *Passer domesticus* L. (type host) from Europe, Russia and North America, the tree sparrow *Passer montanus* (L.) from Russia, the redwing *Turdus iliacus* L. from Russia and the starling *Sturnus vulgaris* L. from France. It has now been recorded from a new host, from England.

MATERIAL EXAMINED: 4 females from quills (primaries and coverts) of the greenfinch *Carduelis chloris*; England, West Yorkshire near Leeds; 11. 2005; leg. B. NATTRESS. Material is deposited in the author's collection.

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