

## Observations on the quill mites (Acari: Syringophilidae) from charadriiform birds

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### Abstract

We provide a list of all 19 named species of the family Syringophilidae (Acari: Prostigmata) parasitizing charadriiform birds (Charadriiformes) together with new records and keys to these species. We describe a new species *Niglarobia cursoriae* sp. nov. from *Cursorius temminckii* Swainson (Glareolidae) and redescribe *Creagonycha totana* (Oudemans, 1904) from *Tringa totanus* L. (Scolopacidae). *Niglarobia cursoriae* sp. nov. differs from the closely related species *N. rhinoptili* Fain *et al.*, 2000 in the following characters: in females of *N. cursoriae* sp. nov. hysterosomal shield is present and fused with pygidial shield; the length ratio of setae *g:pg1:pg2* is 1:5:3.8. In females of *N. rhinoptili* the hysterosomal shield is absent; and the length ratio of setae *g:pg1:pg2* is 1:3:2. All known syringophilid records from charadriiform birds are summarized in tabular form.

**Key words:** Syringophilidae, quill mites, Charadriiformes, ectoparasites

### Introduction

Syringophilid mites are obligatory ectoparasites inhabiting the feather quills of birds. At present more than 140 described quill mite species are known from birds belonging to 16 orders (Bochkov *et al.* 2004; Skoracki & Sikora 2004). Among them, the order Charadriiformes possesses a rich and unique fauna represented by 19 species assigned to six genera: *Niglarobia* Kethley, *Creagonycha* Kethley, *Charadriphilus* Bochkov *et Chistyakov* (= *Charadriaulobia* Bochkov, Fain *et* Skoracki, 2004 syn. nov.), *Kethleyana* Kivganov, *Philoxanthornea* Kethley, and *Selenonycha* Kethley. However, our knowledge of the Syringophilidae parasitizing charadriiform birds is still incomplete. From 18

charadriiform families including 340 species (Howard & Moore 1991), syringophilid mites have been reported only from species of the five following families: Scolopacidae (9 syringophilid species), Charadriidae (1 species), Glareolidae (2 species), Laridae (4 species), and Sternidae (3 species).

This paper contains new data about distributions of quill mites on charadriiform birds and summarizes our knowledge concerning the last hundred years, from 1904 when Oudemans (1904) described the first species from *Tringa totanus* (L.) and *T. ochropus* L.

Description of a new species *Niglarobia cursoriae* sp. nov. from *Cursorius temminckii* Swainson (Glareolidae) and redescription of *Creagonycha totana* (Oudemans, 1904) from *Tringa totanus* L. (Scolopacidae) are given. Keys to the genera are provided. All known syringophilid records from charadriiform birds are summarized in Table 1.

**TABLE 1.** A complete check-list of the quill mites parasitizing charadriiform birds. (p.p. — present paper).

Mite species	Host species	Host family	Distributon	Reference
<i>Niglarobia</i> Kethley, 1970				
<i>N. ereuneti</i> Kethley, 1970	<i>Calidris pusilla</i> (L.)	Scolopacidae	USA	Kethley 1970
<i>N. helleri</i> (Oudemans, 1904)	<i>Tringa ochropus</i> L.	Scolopacidae	France	Oudemans 1904
	<i>Tringa flavipes</i> (Gmelin)	Scolopacidae	Argentina	Skoracki & Sikora 2002
	<i>Tringa stagnatilis</i> (Bechst.)	Scolopacidae	Poland	p.p.
	<i>Arenaria interpres</i> (L.)	Scolopacidae	USA	p.p.
<i>N. skorackii</i> Bochkov et Galloway, 2004	<i>Tringa melanoleuca</i> (Gmelin)	Scolopacidae	Canada	Bochkov & Galloway 2004
<i>N. calidridis</i> Bochkov et Mironov, 1998	<i>Calidris minuta</i> (Leisler)	Scolopacidae	Kazakhstan	Bochkov & Mironov 1998
<i>N. rhinoptili</i> Fain et al., 2000	<i>Rhinoptilus africanus</i> (Temm.)	Glareolidae	South Africa	Fain et al. 2000
<i>N. cursoriae</i> sp. nov.	<i>Cursorius temminckii</i> Swain.	Glareolidae	Namibia	p.p.
<i>Creagonycha</i> Kethley, 1970				
<i>C. lara</i> Kethley, 1970	<i>Larus delawarensis</i> Ord	Laridae	USA	Kethley 1970
	<i>Larus argentatus</i> Pontopp.	Laridae	USA	Kethley 1970
<i>C. sterna</i> Kivganov, 1995	<i>Sterna albifrons</i> Pallas	Sternidae	Ukraine	Kivganov & Sharafat 1995
<i>C. totana</i> (Oudemans, 1904)	<i>Tringa totanus</i> (L.)	Scolopacidae	France	Oudemans 1904

*to be continued*

TABLE 1 (continued).

Mite species	Host species	Host family	Distributon	Reference
	<i>Tringa graleola</i> L.	Scolopacidae	Poland	p.p.
	<i>Calidris alba</i> (Pallas)	Scolopacidae	Togo	Skoracki & Dabert 2002
	<i>Calidris temminckii</i> (Leisler)	Scolopacidae	Poland	p.p.
	<i>Calidris himantopus</i> (Bonaparte)	Scolopacidae	Canada	p.p.
	<i>Calidris minuta</i> (Leisler)	Scolopacidae	Kazakhstan, Poland	Bochkov & Mironov 1998; p.p.
<i>Charadriophilus</i> Bochkov et Chistyakov, 2001				
<i>Ch. lyudmilae</i> Bochkov et Chystiakov, 2001	<i>Scolopax rusticola</i> L.	Scolopacidae	Russia	Bochkov & Chystiakov 2001
<i>Ch. paraguaiae</i> (Skoracki et Sikora, 2002) comb. nov.	<i>Gallinago paraguaiae</i> (Vieillot)	Scolopacidae	Argentina	Skoracki & Sikora 2002
<i>Ch. gallinago</i> (Bochkov et Mironov, 1998) comb. nov.	<i>Gallinago gallinago</i> (L.)	Scolopacidae	France, Poland	Bochkov & Mironov 1998; p.p.
<i>Ch. vanelli</i> (Bochkov, Fain et Skoracki, 2004) comb. nov.	<i>Vanellus chilensis</i> (Molina)	Scolopacidae	Brazil	Bochkov <i>et al.</i> 2004
<i>Kethleyana</i> Kivganov, 1995				
<i>K. gelochelidoni</i> Kivganov, 1995	<i>Sterna nilotica</i> Gmelin	Sternidae	Ukraine	Kivganov & Sharafat 1995
<i>Philoxanthornea</i> Kethley, 1970				
<i>P. dubinini</i> Bochkov et Mironov, 1998	<i>Sterna nilotica</i> Gmelin	Sternidae	Kazakhstan	Bochkov & Mironov 1998
	<i>Chlidonias leucopterus</i> (Temm.)	Sternidae	Egypt	p.p.
<i>P. clarki</i> Kivganov, 1995	<i>Sterna albifrons</i> Pallas	Sternidae	Ukraine	Kivganov & Sharafat 1995
	<i>Sterna hirundo</i> L.	Sternidae	Poland	p.p.
	<i>Larus canus</i> L.	Laridae	Russia	Bochkov & Mironov 1998
<i>P. anoa</i> Kethley, 1970	<i>Anous tenuirostris</i> (Temm.)	Sternidae	USA	Kethley 1970
<i>Selenonycha</i> Kethley, 1970				
<i>S. baltoda</i> Kethley, 1970	<i>Charadrius wilsonia</i> Ord	Charadriidae	USA	Kethley 1970

to be continued

TABLE 1 (continued).

Mite species	Host species	Host family	Distributon	Reference
	<i>Charadrius placidus</i> Gray	Charadriidae	Russia	Bochkov & Mironov 1998
	<i>Pluvialis dominica</i> (Müller)	Charadriidae	Paraguay	p.p.
	<i>Larus atricilla</i> L.	Laridae	USA	p.p.
	<i>Larus gene</i> Breme	Laridae	Egypt	p.p.
	<i>Larus californicus</i> Lawrence	Laridae	USA	p.p.
	<i>Larus ridibundus</i> L.	Laridae	Germany	p.p.

## Material and methods

Mites used in this study were prepared in a polyvinyl lactophenol medium on microslides and investigated using a light microscope with differential interference (Nomarski) contrast with an Olympus BH2 microscope. The nomenclature of idiosomal setae is based on that of Fain (1979) in the version adapted to the family Syringophilidae (Bochkov & Mironov, 1998). The terminology for morphology and leg chaetotaxy follows Grandjean (1944) first applied to these mites by Kethley (1970). Bird taxonomy follows that of Howard and Moore (1991). All measurements in descriptions are given in micrometres ( $\mu\text{m}$ ).

Abbreviations for locations where the materials are deposited: UAM—Department of Animal Morphology, A. Mickiewicz University, Poznan, Poland; ZIN—Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia; ZSM—Zoologische Staatssammlung München, Germany; UMMZ—University of Michigan, Museum of Zoology, Ann Arbor, Michigan, USA.

## Results

### Family: Syringophilidae Lavoipierre, 1953

### Subfamily: Syringophilinae Lavoipierre, 1953

### Genus *Niglarobia* Kethley, 1970

Type species: *N. ereuneti* Kethley, 1970

Species of this genus are small to medium sized mites (520–600  $\mu\text{m}$ ) inhabiting quills of

the primaries and secondaries of charadriiform and gruiform birds. This genus is most similar to the genus *Aulobia* Kethley (Kethley 1970; Johnston & Kethley 1973). Because some species belonging to the genus *Niglarobia* have characteristics not corresponding to the diagnosis of Kethley (1970), we give an emended diagnosis of this genus. A new species *N. cursoriae* sp. nov. from *Cursorius temminckii* Swainson is described.

#### *Diagnosis*

**FEMALE.** Hypostomal apex smooth, without protuberances. Lateral hypostomal teeth absent. Chelicerae edentate. Peritremes M-shaped, number of chambers in transverse and longitudinal branches variable. Stylophore rounded or slightly constricted posteriorly. Dorsal setae of idiosoma smooth or serrate. Setal pattern of propodosoma with 6 pairs of setae, setae *sce* and *d1* set at the same level or setae *sce* situated posteriorly to the level of setae *d1*. Dorsal shields weakly sclerotized, hysterosomal shield variable, present or absent. Genital and anal series with two pairs of setae, paragenital series with three pairs of setae. Epimeres I parallel or slightly divergent, not fused to epimeres II. All legs subequal in thickness. Setae *vs'I* absent or present, setae *vs'II* absent. Antaxial and paraxial members of claw pair subequal, basal angle of claws present or absent. Orders of hosts: Charadriiformes, Gruiformes. Types of feathers inhabited: primaries, secondaries and coverts.

**MALE.** As in female except dorsal setae of idiosoma smooth.

#### *Niglarobia cursoriae* sp. nov.

#### *Description*

**FEMALE** (Figs. 1–6). Total body length of holotype 535 (550–585 in 5 paratypes). *Gnathosoma*. Gnathosoma with punctations on ventral side. Hypostomal apex with one pair of large and two pairs of small lips (Fig. 3). Each transverse branch of peritremes with 2 chambers, each longitudinal branch with 4–5 chambers (Fig. 4). Stylophore rounded or slightly constricted posteriorly, 145 (145) long. *Idiosoma*. Propodosomal shield with scarce punctations, anterior margin of this shield indistinct. Propodosomal setae smooth; length ratio of setae *vi:ve:sci* 1:1.5:3.5–4. Bases of setae *d1* situated anterior to the level bases of setae *sce*. Hysterosomal shield fused to pygidial shield, bearing bases of setae *d2*, *d4*, *d5*, *l4* and *l5*, posterior part of this shield with scarce punctations. Setae *l2* and *d2* subequal in length, setae *l4* 5–6 times longer than setae *d4*. Cuticular striations as in Figs. 1 and 2. *Legs*. Epimeres I parallel. Coxae I–IV punctated. Setae *vs'I* present. Fan-like setae *p'* and *p''* of legs III and IV with 7 tines (Fig. 5). Claws of tarsi of legs III–IV without basal angle (Fig. 6). Setae *tc''* of legs III and IV 2 times longer than *tc'* of legs III and IV. Lengths of setae: *vi* 20 (20); *ve* 30 (30–35); *sci* 70 (70–80); *h* (215); *sce* 200 (190–200); *d1* 180 (200–215); *d2* 125 (135–170); *d4* 30 (25–35); *d5* 30 (25–35); *l1* (115–140); *l2* 130 (135–160); *l4* (160–180); *l5* (320–335); *a1* and *a2* (20); *g1* and *g2* (25); *pg1* 125

(115–125); *pg2* (95); *pg3* (115–120); *tc'* III–IV (25–30); *tc''* III–IV (60–65); *sc3* (30); *sc4* (40–45).

MALE. unknown.

#### *Type material*

Female holotype (Syr.104) and 7 female paratypes from *Cursorius temmincki* Swainson (Glareolidae); Ahlenhorst Distr., Namibia; 11 December 1991; coll. A. J. Baker. Holotype and most of paratypes are deposited at UAM, 1 female at ZIN, 1 female at ZSM.

Type deposition. Holotype and most of paratypes are deposited at UAM, 1 female at ZIN, 1 female at ZSM.

#### *Etymology*

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

#### *Differential diagnosis*

*Niglarobia cursoriae* sp. nov. is closely related to *N. rhinoptili* Fain *et al.*, 2000 from *Rhinoptilus africanus* (Temminck) (Glareolidae) from South Africa. In females of both species setae *vs'I* are present and the claws are without the basal angles. The new species differs from *N. rhinoptili* by the following characters: in females of *N. cursoriae* sp. nov. the hysterosomal shield is present and fused with the pygidial shield; the lengths of paragenital setae *pg1*, *pg2* and *pg3* are 115–125, 95 and 115–120 respectively; the length ratio of setae *g:pg1:pg2* is 1:5:3.8. In females of *N. rhinoptili* the hysterosomal shield is absent; the lengths of paragenital setae *pg1*, *pg2* and *pg3* are 38, 24 and 56, respectively; the length ratio of setae *g:pg1:pg2* is 1:3:2.

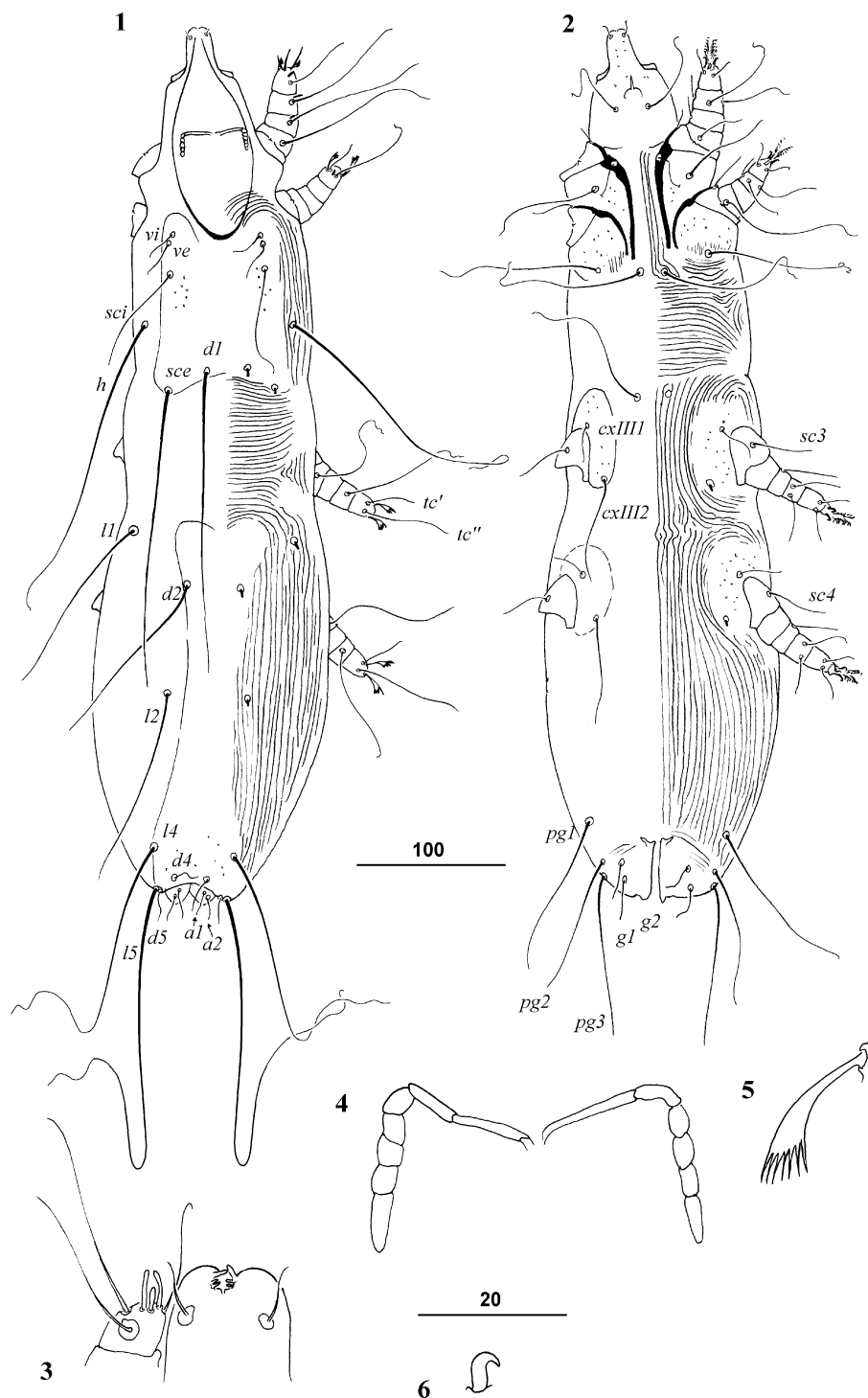
#### ***Niglarobia helleri* (Oudemans, 1904)**

Syn. *Syringophilus helleri* Oudemans, 1904

*N. helleri* was described from *Tringa ochropus* L. from France (Oudemans 1904). It has been recently recorded from *T. flavipes* (Gmelin) from Argentina (Skoracki & Sikora 2002). In the context of this study we have found this species on two new host species listed below. The countries USA and Poland are new localities for *N. helleri*.

#### *Material examined*

One female, two males and twelve nymphs from *Arenaria interpres* (L); USA, Michigan, Bay Co., Sajinaw Bay near Bay City; 11 September 1980; coll. G. Belyea. 4 females from coverts of *Tringa stagnatilis* (Bechstein); Poland, Słońsk; 21 July 1987; coll. J. Dabert.



**FIGURES 1–6.** *Niglarobia cursoriae* sp. nov. (female). 1, dorsal view; 2, ventral view; 3, hypostomal apex in ventral view; 4, peritremes; 5, fan-like seta of legs III; 6, claw of legs III. Scale bars are in micrometres.

Material deposition. From *Arenaria interpres*: all specimens are deposited at UAM; from *Tringa stagnatilis*: 3 females at UAM, 1 female at ZIN.

**Key to the genus *Niglarobia* (females) (after Fain *et al.* 2000 with modifications)**

1. Setae *vs'I* present..... 2
- Setae *vs'I* absent ..... 6
2. Claws of legs III and IV with basal angle ..... 3
- Claws of legs III and IV without basal angle ..... 5
3. Setae *l4* no more than 3 times longer than *d4* ..... *N. trouessarti* (Oudemans, 1904)
- Setae *l4* more than 6 times longer than *d4* ..... 4
4. Setae *l1* approximately 1.3 times shorter than *l2* ..... *N. ereuneti* Kethley, 1970
- Setae *l1* and *l2* subequal ..... *N. helleri* (Oudemans, 1904)
5. Hysterosomal shield present and fused to pygidial shield. Length ratio of setae *g:pg1:pg2* 1:5:3.8 ..... *N. cursoriae* sp. nov.
- Hysterosomal shield absent. Length ratio of setae *g:pg1:pg2* 1:3:2 ..... *N. rhinoptili* Fain, Bochkov et Mironov, 2000
6. Dorsal setae of idiosoma serrate ..... *N. skorackii* Bochkov et Galloway, 2004
- Dorsal setae of idiosoma smooth ..... *N. calidridis* Bochkov et Mironov, 1998

**Genus *Creagonycha* Kethley, 1970**

Type species: *C. lara* Kethley, 1970

This genus includes three named species associated exclusively with charadriiform birds of two families, Laridae and Scolopacidae. These medium sized to large mites (740–975 µm) inhabit quills of secondaries and appear to be most similar to the genus *Selenonycha* (Kethley 1970; Johnston & Kethley 1973). Below we provide a redescription of *C. totana* (Oudemans 1904) based on the type material, three new hosts for this species, and a key to the *Creagonycha* species.

***Creagonycha totana* (Oudemans, 1904)**

Syn. *Syringophilus totani* Oudemans, 1904

*C. totana* was described from *Tringa totanus* (L.) from France (Oudemans, 1904). Later on, it was reported from *Calidris minuta* (Leisler) from Kazakhstan (Bochkov & Mironov 1998) and from *Calidris alba* (Pallas) from Togo (Skoracki & Dabert 2002).

FEMALE (Figs. 7–11). *Gnathosoma*. Each transverse branch of peritremes with 4



chambers, each longitudinal branch with 11 chambers (Fig. 10). Stylophore constricted posteriorly, 250 long. *Idiosoma*. Propodosomal shield weakly sclerotized, bearing bases of setae *vi*, *ve*, *sci* and *d1*. Length ratio of setae *vi:ve:sci* 1:1.7:2.5. Setae *sci*, *sce*, *h*, *l1*, *d1*, *d2*, *l2* subequal in length. Hysterosomal plate absent, pygidial shield present and well sclerotized. Setae *d4* and *pg2* subequal in length. Cuticular striations as in Figs. 7, 9. *Legs*. Fan-like setae *p'* and *p''* of legs III and IV with 10 tines (Fig. 11). Setae *tc'* III–IV 1.2 times shorter than *tc''* III–IV.

Lengths of setae *vi* 70; *ve* 120; *sci* 180; *h* 180; *sce* 180; *l1* 180; *l2* 200; *l5* 440; *d1* 200; *d2* 200; *d4* 60; *a1* and *a2* 55 *g2* 65; *pg1* >130; *pg2* 60; *pg3* >190; *tc'* III–IV 75; *tc''* III–IV 90.

#### *Material examined*

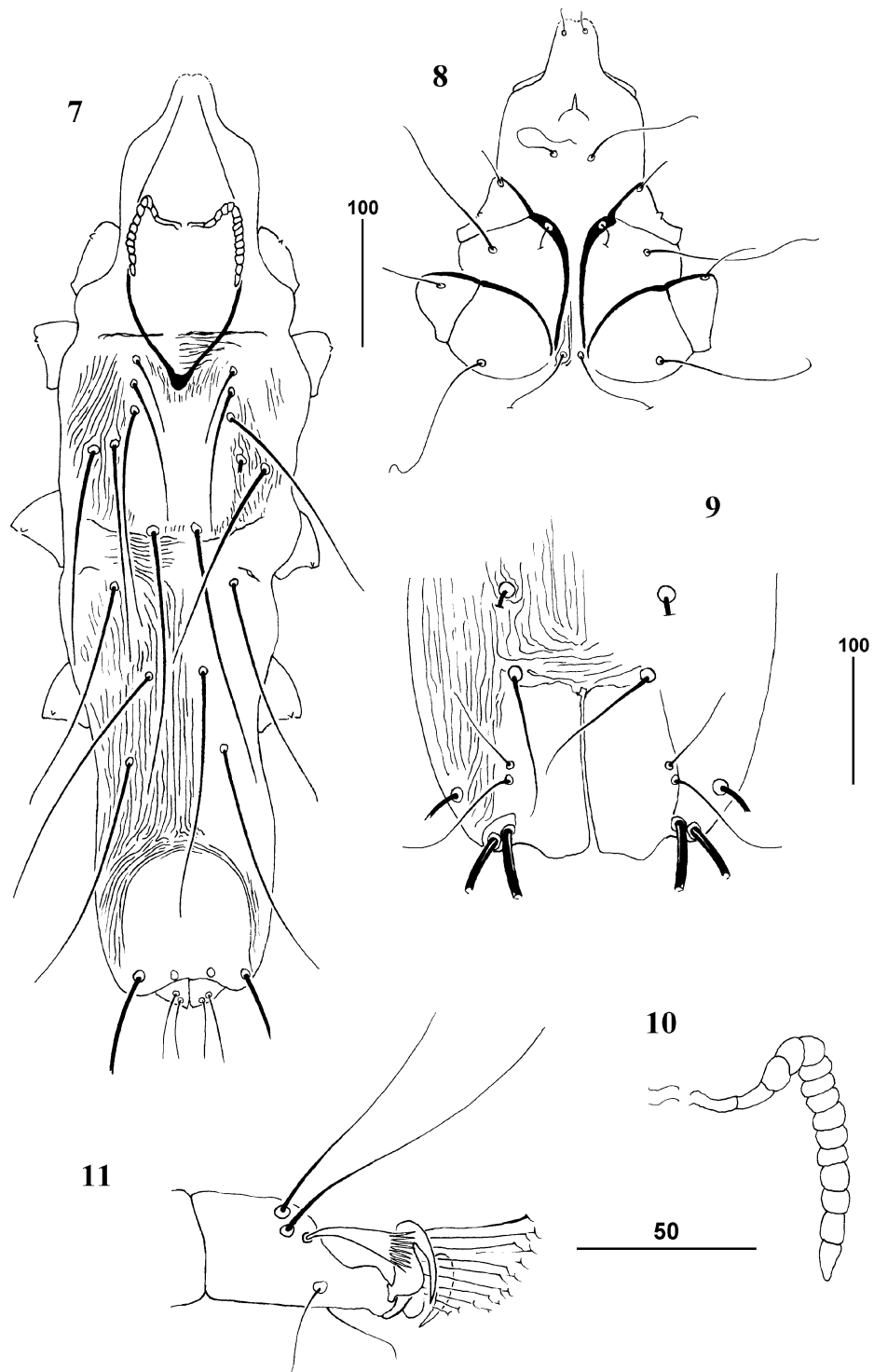
Type material examined. One female (paratype) (NMNH 36H4) from *Tringa totanus* (L) (= *Tringa calidris* by the original description); France, no other data.

Non-type material examined. Six females (Syr.106) from *Calidris temminckii* (Leisler); Poland, Słońsk; 19 July 1987; coll. J. Dabert. 8 females, 6 males, 5 nymphs (Syr.107) from *Tringa glareola* L.; Poland, Słońsk; 23 July 1987; coll. J. Dabert. 1 female, 1 male, 1 nymph, 1 larva (Syr.108) from *Calidris minuta* (Leisler); Poland, Słońsk; 23 July 1987; coll. J. Dabert. 25 females, 5 males, 8 nymphs and 2 larvae (Syr.110) from *Calidris* (= *Micropalama*) *himantopus* (Bonaparte); Canada, Manitoba; 01 July 1964; coll. J.R. Yehl.

Material deposition. From *Calidris temminckii*: 4 females at UAM, 1 female at ZSM, 1 female at ZIN; from *Tringa glareola*: 6 females, 4 males and 3 nymphs at UAM, 1 female and 1 male at ZSM, 1 female and 1 male at ZIN; from *Calidris minuta*: all specimens at UAM; from *Calidris himantopus*: 16 females, 3 males, 4 nymphs and 2 larvae at UAM, 4 females, 1 male and 2 nymphs at ZIN, 2 females and 2 nymphs at ZSM, 3 females and 1 male at UMMZ.

#### **Key to the species of the genus *Creagonycha* (females)**

1. Setae *sci* 6 times longer than *vi* ..... *C. lara* Kethley, 1970
- Setae *sci* no more than 3 times longer than *vi* ..... 2
2. 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 tines ..... *C. totana* (Oudemans, 1904)



**FIGURES 7–11.** *Creagonycha totana* (Oudemans, 1904) (female). 7, dorsal view; 8, epimeres I and II; 9, opisthosoma in ventral view; 10, peritreme; 11, tarsus of legs III. Scale bars are in micrometres.

## Genus *Charadriphilus* Bochkov et Chystiakov, 2001

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Type-species: *C. ludmilae* Bochkov et Chystiakov, 2001

This genus is represented by small or medium sized mites (600–850  $\mu\text{m}$ ) which morphologically appear to be most similar to the genus *Aulobia* Kethley. The genus *Charadriphilus* includes four species associated with birds of the families Scolopacidae (3 syringophilid species) and Charadriidae (1 species) (Bochkov & Chystiakov 2001, Bochkov *et al.* 2004). All species of this genus, excluding the type species of the genus *Charadriphilus*, *C. ludmilae* Bochkov et Chystiakov, 2001, were previously placed in the genus *Charadriiaulobia* Bochkov, Fain et Skoracki, 2004 syn. nov. (Bochkov *et al.* 2004). The generic diagnosis of *Charadriiaulobia* perfectly correspond to that of *Charadriphilus* and therefore, we consider here this genus as a junior synonym of *Charadriphilus*. Below, we present the material of *Ch. gallinago* comb. nov. from Poland (new locality), and the key to species of this genus.

### *Charadriphilus gallinago* (Bochkov et Mironov, 1998) comb. nov.

#### *Material examined*

One female (UAM 01020) from *Gallinago gallinago* (Linnaeus); Poland, Słoński; 24 July 1987; coll. J. Dabert.

Material deposition. Mite specimen is deposited at UAM.

### Key to the species of the genus *Charadriphilus* (females)

1. Peritremes with more than 15 chambers; setae *sci* longer than *vi*..... 2
- Peritremes with 10 chambers; setae *vi* and *sci* subequal.....  
..... *Ch. paraguaiae* (Skoracki et Sikora, 2002) comb. nov.
2. Transverse branch of peritremes with three chambers, setae *ve* shorter than *sci*..... 3
- Transverse branch of peritremes with 8–9 chambers, setae *ve* and *sci* subequal.....  
..... *Ch. vanelli* (Bochkov, Fain et Skoracki, 2004) comb. nov.
3. Longitudinal branch of peritremes with 17 chambers.....
- ..... *Ch. gallinago* (Bochkov et Mironov, 1998) comb. nov.
- Longitudinal branch of peritremes with 13 chambers.....  
..... *Ch. lyudmilae* Bochkov et Chystiakov, 2001

## Genus *Kethleyana* Kivganov, 1995

Type species: *K. gelochelidoni* Kivganov, 1995

Only one species has been described—*K. gelochelidoni* Kivganov, 1995 from *Sterna nilotica* (Sternidae) from the Ukraine (Kivganov & Sharafat 1995)—and no other data have accrued since the first description. This monotypic genus is very similar to the genus *Creagonycha* but species of this genus have lost one pair of paragenital setae (*pg2*) in females.

### **Genus *Philoxanthornea* Kethley, 1970**

Type species: *P. anoa* Kethley, 1970

This genus includes three named species which are found in the flight feathers of charadriiform birds of the families Laridae and Sternidae. These small sized mites (520–600 µm) are morphologically closely related to the genus *Syringophiloidus* Kethley whose species are mainly restricted to passerines. Below we report new host species for *P. clarki* and *P. dubinini* and a key to species of this genus.

### ***Philoxanthornea dubinini* Bochkov et Mironov, 1998**

This species was described from *Sterna nilotica* Gmelin from Kazakhstan (Bochkov & Mironov 1998). We recorded this species from *Chlidonias leucopterus* (Temminck) (Sternidae) from Egypt for the first time since the original description.

#### *Material examined*

Twelve females (Syr. 105) from *Ch. leucopterus*; Egypt, Beheira Governate, Wadi El Natrum, Birket el Brida; 27 May 1984; coll. S.M. Goodman.

Material deposition. Six females at UAM, 2 females at ZSM, 2 females at UMMZ, 2 females at ZIN.

### ***Philoxanthornea clarki* Kivganov, 1995**

This species was reported from *Sterna albifrons* Pallas (Sternidae) from the Ukraine and from *Larus canus* L (Laridae) from Russia (Kivganov & Sharafat 1995; Bochkov & Mironov 1998). We recollected this species from *Sterna hirundo* L. (Sternidae) from Poland.

#### *Material examined*

Nine females, 1 male, 6 nymphs and 2 larvae from coverts of *S. hirundo*; Poland, Darlowo; April 2000; coll M. Skoracki.

Material deposition. Whole material is deposited at UAM except 2 females at ZIN and 2 females at ZSM.

### Key to the species of the genus *Philoxanthornea* (females)

1. Setae *l1*, *d2* and *l2* subequal in length ..... 2  
- Setae *l1* 2 times longer than *d2* and *l2* ..... *P. dubinini* Bochkov et Mironov, 1998
2. Setae *h* 3.3 times longer than *vi*, setae *pg2* 2 times shorter than *pg1* .....  
..... *P. clarki* Kivganov, 1995  
- Setae *h* 5 times shorter than *vi*, setae *pg2* no more than 1.5 times shorter than *pg1* .....  
..... *P. anoa* Kethley, 1970

### Genus *Selenonycha* Kethley, 1970

Type species: *S. baltoda* Kethley, 1970

This genus includes only *S. baltoda* Kethley, 1970. This species was described from *Charadrius wilsonia* Ord (Charadriidae) from the USA (Kethley 1970). Later on it was recollected from *Charadrius placidus* Gray from Russia (Bochkov & Mironov 1998). Below we give five new host species for *S. baltoda*.

#### *Material examined*

Nine females and 4 males (Syr.95) from *Pluvialis dominica* (Müller) (Charadriidae); Paraguay, Departamento Alto Paraguay, West Bank of Rio Paraguay, Colonia Carmelo Peralta, 21 September 1988, coll. S. M. Goodman; 25 females, 3 males and 1 nymph (Syr.96) from *Larus atricilla* L. (Laridae); USA, Florida, Taylor Co., 28 mil SE Perry, 01 September 1970, coll. W. T. Atyeo; 7 females and 2 nymphs (Syr.97) from *Larus genei* Breme (Laridae); Egypt, Lake Manzala area, 04 January 1984, coll. S. M. Goodman, UMMZ 206583; 8 females and 1 male (Syr.98) from *Larus californicus* Lawrence (Laridae); USA, California, Mono Co., Mono Lake, 16 July 1983, coll. J. R. Jehl, UMMZ 206315; 2 females (Syr.99) from secondaries of *Larus ridibundus* L. (Laridae); Germany, Regis (in Saxony), 31 October 2002, coll. Synnatzschke; 2 females from the same host; Germany, Leipzig, 07 September 2002, coll. Synnatzschke.

Material deposition. From *Pluvialis dominica*: 5 females and 3 males at UAM, 2 females and 1 male at ZIN, 2 females at UMMZ; from *Larus atricilla*: 16 females, 2 males and 1 nymph at UAM, 4 females at ZIN, 2 females at ZSM, 3 females and 1 male at UMMZ; from *Larus genei*: 5 females and 2 nymphs at UAM, 2 females at UMMZ; from *Larus californicus*: 6 females and 1 male at UAM, 2 females at UMMZ; from *Larus ridibundus*: all specimens at UAM.

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