

Ixobrychiphilus, a new genus of the family Syringophilidae (Acariformes: Prostigmata)

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ABSTRACT — A new monotypic genus of parasitic mites is proposed for *Ixobrychiphilus wallacei* **n. gen., n. sp.** (Acariformes: Prostigmata: Syringophilidae) collected from *Ixobrychus cinnamomeus* (Gmelin) (Pelecaniformes: Ardeidae) from China. This new genus is morphologically similar to *Niglarobia* Kethley, 1970 but differs by the presence of a full complement of leg setae (vs. setae *vsII* absent in *Niglarobia*), propodonal setae arranged 2-1-1-1-1 (vs. 2-1-1-2), and legs I thicker than II (vs. legs I and II equal in thickness).

KEYWORDS — birds; ectoparasites; quill mites; Pelecaniformes; Syringophilidae

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INTRODUCTION

Quill mites of the family Syringophilidae Lavoipierre (Acariformes: Prostigmata: Cheyletoidea) are permanent, obligatory, and host-specific (mono- or stenoxenous) parasites associated with birds belonging to 24 orders (Skoracki *et al.* 2012; Glowska *et al.* 2015). They are found inside the quills of different types of feathers: primaries, secondaries, tertiaries, coverts, rectrices, and contour feathers (Kethley 1970; Skoracki 2011).

The family is an assemblage of approximately 330 species of 60 genera described from all zoogeographical regions except Antarctica (Glowska *et al.* 2015).

A new genus is established herein for a new

species *Ixobrychiphilus wallacei* **n. gen., n. sp.**, collected from the quills of the Cinnamon Bittern *Ixobrychus cinnamomeus* (Gmelin) (Pelecaniformes: Ardeidae) from China. The host order, Pelecaniformes includes 108 species grouped in five families: Ardeidae, Balaenicipitidae, Pelecanidae, Scopidae, Threskionithidae (Clements *et al.* 2015), and up to now, only one species of syringophilid mites has been recorded from this host order - *Trypetoptila casmerodia* Kethley, 1970 found on the Great Egret *Ardea alba egretta* (Linnaeus) (Ardeidae) in the United States (Kethley 1970).

It clearly shows how far we are from the full knowledge about diversity of quill mites parasitising this group of birds.

MATERIALS AND METHODS

The material used in the present study was collected by MZ and PS from dry bird skins deposited in the Bavarian State Collection of Zoology, Munich, Germany. Mites were collected from quills of contour feathers and before mounting, they were softened and cleared in Nesbitt's solution at 40°C for 1-2 days. For study, mites were mounted on slides in the Hoyer's medium according to the standard technique for these mites (Walter and Krantz 2009). Identifications and drawings of mite specimens were carried out with a ZEISS Axioscope-2 (Carl-Zeiss AG, Germany) light microscope equipped with DIC optics and *camera lucida*. In the descriptions below, the idiosomal setation follows Grandjean (1939) as adapted for Prostigmata by Kethley (1990). Nomenclature of leg setae follows that proposed by Grandjean (1944). Morphological terminology follows Skoracki (2011). All measurements are in micrometers (μm). Measurement ranges for paratypes are given in brackets following the data for a holotype. Specimen depositories are cited using the following abbreviations: AMU, A. Mickiewicz University, Department of Animal Morphology, Poznan, Poland; ZSM, Bavarian State Collection of Zoology, Munich, Germany.

DESCRIPTIONS

Family Syringophilidae Lavoipierre, 1953 Subfamily Syringophilinae Lavoipierre, 1953

Ixobrychiphilus n. gen.

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Diagnosis — Female: Small sized syringophilids (total body length 490 – 540). Gnathosoma. Hypostomal apex rounded, without protuberances. Lateral hypostomal teeth absent. Peritremes M-shaped with clearly visible chambers in each branch. Anterior tip of each movable cheliceral digit with 2 teeth. Stylophore rounded posteriorly. Idiosoma. Six pairs of propodonal setae arranged 2-1-1-1-1. Setae *d1* situated closer to *d2* than to *e2*. Agenital series with 3 pairs of setae. Each pseudanal and genital series with 2 pairs of setae. All idiosomal setae

smooth and whip-like. Legs. Legs I thicker than II. Antaxial and paraxial members claw pair subequal in size and shape, without basal angle. Apodemes I parallel, not fused to apodemes II. Legs with full complement of setae.

Male: Unknown.

Type species — *Ixobrychiphilus wallacei* n. sp.

Etymology — The name "*Ixobrychiphilus*" is taken from the generic name of the host – *Ixobrychus*, and *philus* (Gr. *phileo* – lover of).

Differential diagnosis — This new genus is morphologically similar to *Niglarobia* Kethley, 1970 associated with charadriiform birds. In females of both species, the lateral hypostomal teeth are absent; the apodemes I are parallel and not fused to the apodemes II; the stylophore is without large tip on the posterior margin. This new genus is distinguished by the following features: in females of *Ixobrychiphilus*, propodonal setae are arranged 2-1-1-1-1; legs I are thicker in comparison to legs II; legs I-IV are with full complement of setae, and claws of legs I-IV are without the basal angles. In females of *Niglarobia*, propodonal setae are arranged 2-1-1-2; legs I and II are equal in thickness; leg setae *vsII* are absent, and claws of legs I-IV are with the basal angles.

Ixobrychiphilus wallacei n. sp. (Figures 1 and 2)

Zoobank: [8B7362D8-01C7-4376-B217-2EAE1B473E95](https://zoobank.org/8B7362D8-01C7-4376-B217-2EAE1B473E95)

Description — Female: Total body length 500 in holotype (490 – 540 in 6 paratypes). Gnathosoma. Infracapitulum punctate. Movable cheliceral digit 115 (105 – 115) long. Each medial branch of peritremes with 1 chamber, each lateral branch with 4-5 chambers. Stylophore punctate, with striate ornament, 150 (140 – 150) long. Idiosoma. Propodonal shield weakly sclerotized, anterior and posterior margins indiscernible, bearing bases of setae *vi*, *ve*, *si*, *se*, and *c1*, surface of this shield punctate in middle part. Bases of setae *se* situated anterior to level of setae *c1*. Hysteronotal shield apunctate, situated between bases of setae *d1* and *e2*, not fused to pygidial shield. Pygidial shield well sclerotized, apunctate, with incision on anterior margin. Setae

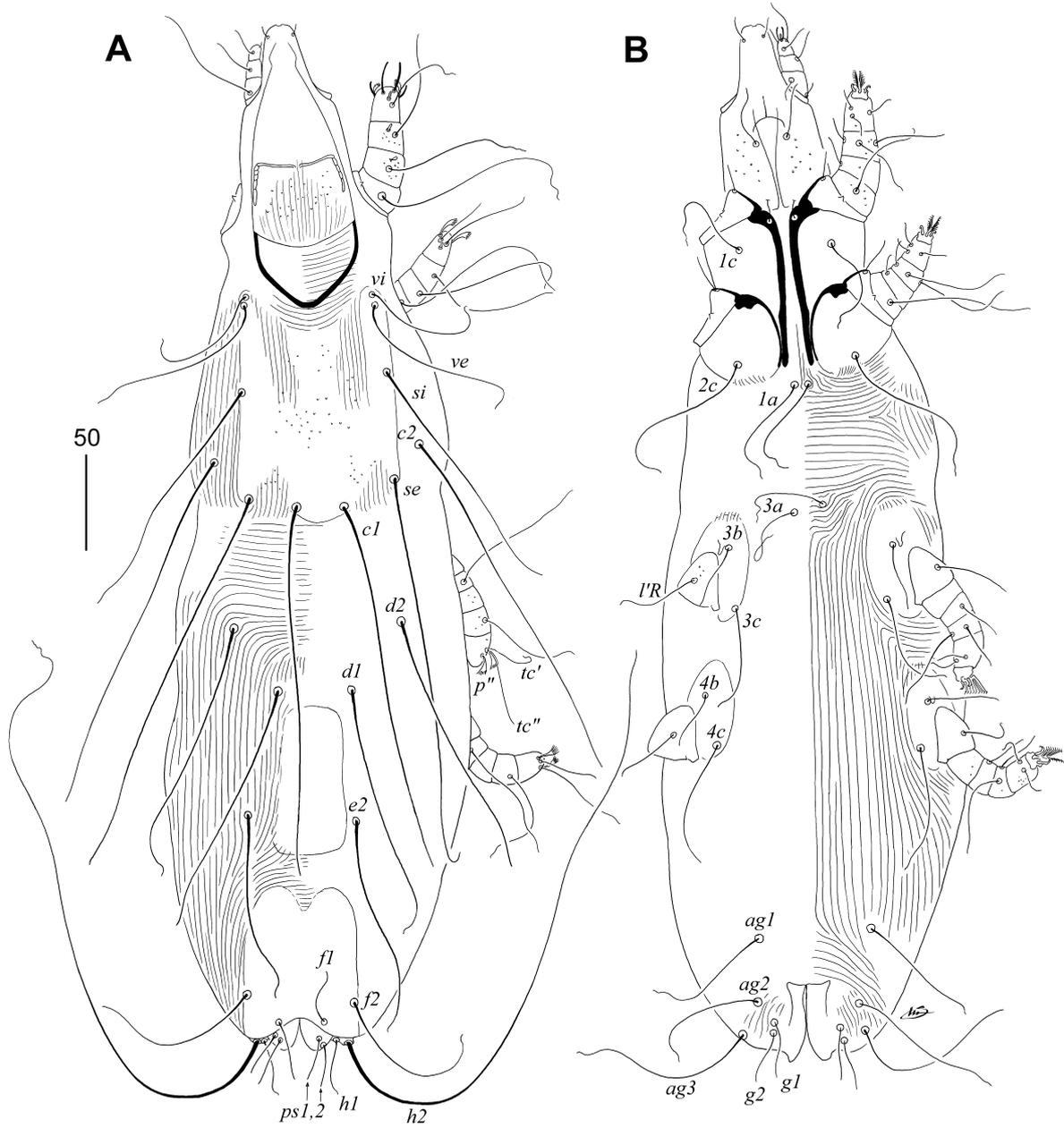


FIGURE 1: *Ixobrychiphilus wallacei* n. sp., female: A – dorsal view; B – ventral view.

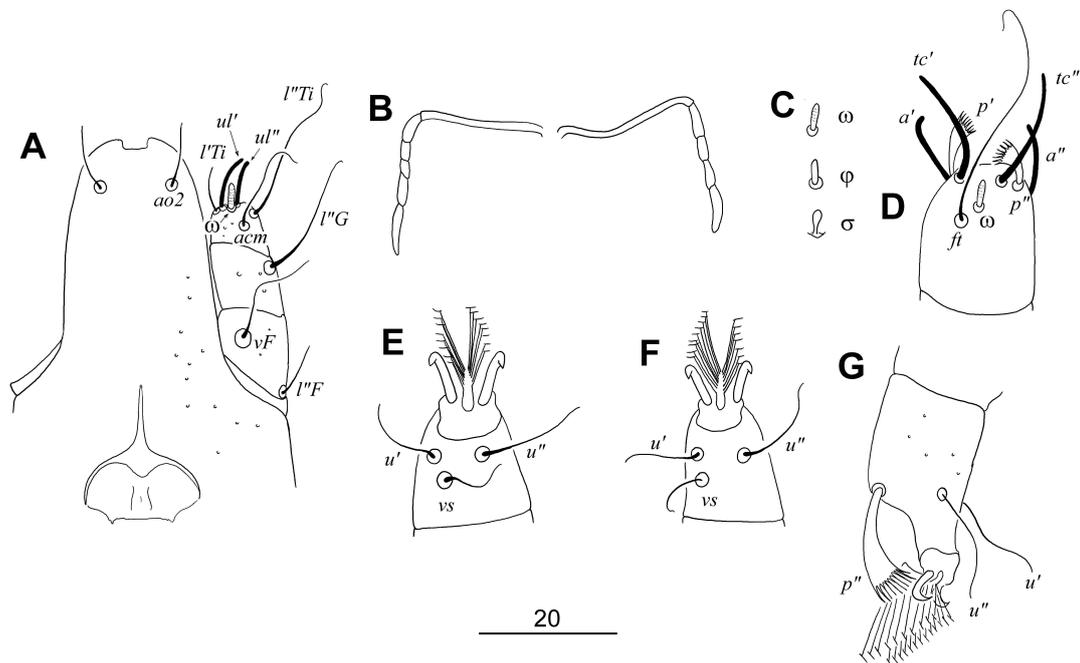


FIGURE 2: *Ixobrychiphilus wallacei* n. sp., female: A – gnathosoma in ventral view; B – peritremes; C – solenidia of leg I; D – tarsus I in dorsal view; E – tarsus I in ventral view; F – tarsus II in ventral view; G – tarsus III in lateral view.

f2 2.8–3.6 times longer than *f1*. Length ratio of setae *ag1:ag2:ag3* 1:1:1–1.5. Genital plate absent. Pseudanal setae *ps1* and *ps2* subequal in length. Genital setae *g1* and *g2* subequal in length. Legs. Coxal fields I–IV apunctate, well sclerotized. Fan-like setae *p'* and *p''* of legs III and IV with 10 tines. Setae *4c* about twice as long as *4b*. All solenidia of leg I subequal in length. Lengths of setae: *vi* 30 (25 – 50), *ve* 80 (75 – 90), *si* 135 (120 – 135), *se* 195 (180 – 210), *c1* 180 (170 – 220), *c2* 180 (160 – 190), *d1* 120 (110 – 130), *d2* 145 (130 – 145), *e2* 115 (90 – 120), *f1* 30 (25 – 30), *f2* 85 (85 – 90), *h1* 20 (20 – 30), *h2* 310 (280 – 310), *ps1* 20 (15 – 25), *ps2* (15 – 25), *g1* 30 (25 – 35), *g2* 30 (25 – 35), *ag1* (70 – 80), *ag2* (80 – 90), *ag3* 110 (80 – 120), *l'RIII* 40 (35 – 40), *4b* (40 – 45), *4c* (90).

Male: Not found.

Type material — Female holotype and 6 female paratypes (Reg. No. AMU-SYR.517) from quills of contour feathers of *Ixobrychus cinnamomeus* (Gmelin) (Pelecaniformes: Ardeidae), China, Middle Course of Yangtze River, 26 Sept. 1899, coll. G. Haberer.

Type material deposition — All type specimens are deposited in the AMU, except 1 female paratype in the ZSM.

Etymology — The species is named in honor of a British naturalist, biologist, explorer, and geographer, Alfred Russel Wallace.

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