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VERSITA

A new quill mite species *Neopicobia hepburni* sp. nov. (Cheyletoidea: Syringophilidae) parasitizing picid birds (Piciformes: Picidae) in Peru

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Abstract

A new quill mite species *Neopicobia hepburni* sp. nov. is described from the Ecuadorian Piculet *Picumnus sclateri* Taczanowski (type host) and the Olivaceous Piculet *Picumnus olivaceus* Lafresnaye (Piciformes: Picidae) from Peru. Females of *N. hepburni* are distinguishable from most similar species *N. ea* Skoracki et Unsoeld by the propodonotal shield divided into 3 sclerites, the pygidial shield with a vertical furrow and wing-like appendages, the presence of the genital lobes, setae *f2* 2.7 times longer than *f1* and length ratio of *ag1:ag2:ag3* equals 2:1:2. In females of *N. ea*, the propodonotal shield is entire, the pygidial shield is oval, without vertical furrow and appendages, the genital lobes are absent, setae *f2* are 4.5–5.5 times longer than *f1* and length ratios of *ag1:ag2:ag3* are 2.2–2.7:1:3–3.2.

Keywords

Quill mites, Syringophilidae, *Neopicobia*, picid birds, systematics

Introduction

Syringophilid mites (Prostigmata: Cheyletoidea) are a group of avian obligatory ectoparasites, which live and feed inside the quills of various types of feathers. They are represented by 60 genera with 318 species reported from bird hosts belonging to 93 families and 23 orders. The family is divided into two subfamilies: Syringophilinae Lavoipierre with 257 species grouped in 50 genera and Picobiinae Johnston and Kethley with 61 species belonging to 10 genera (Glowska 2014, Glowska and Schmidt 2014). Among picobiins, five species of two genera have been previously reported from picid birds (Piciformes: Picidae). Three of them belong to the genus *Picobia* Haller: *Picobia dryobatis* (Fritsch) (associated with 21 host species), *P. heeri* Haller (8) and *P. mentalis* Skoracki et Unsoeld (1); two species belong to the genus *Neopicobia* Skoracki: *N. ea* Skoracki et Unsoeld (3) and *N. freya* Skoracki et Unsoeld (2) (Skoracki *et al.* 2014).

In the present paper a new quill mite species *Neopicobia hepburni* **sp. nov.** is described from the Ecuadorian Piculet *Picumnus sclateri* Taczanowski (type host) and the Olivaceous Piculet *Picumnus olivaceus* Lafresnaye (Piciformes: Picidae) from Peru.

Materials and Methods

Material used in the study was acquired from the collection of feathers deposited in Smithsonian Institution, National Museum of Natural History, Department of Vertebrate Zoology, Division of Birds, Washington, DC, US (USNM). Bird specimens were trapped by B. K. Schmidt during the expedition to Peru (2009). Drawings were made with an Olympus BH2 microscope with differential interference contrast (DIC) optics and a camera lucida. All measurements are given in micrometres (µm). The idiosomal setation follows Grandjean (1939) with modifications adapted for Prostigmata by Kethley (1990). The system of nomenclature for leg setation follows that proposed by Grandjean (1944). The application of these chaetotaxic schemes to Syringophilidae was recently provided by Bochkov *et al.* (2008) with changes by Skoracki (2011). The Latin and common names of the birds follow Clements *et al.* (2012).

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Results

Family Syringophilidae Lavoipierre, 1953
Subfamily Picobiinae Johnston and Kethley, 1973
Genus *Neopicobia* Skoracki, 2011

The genus *Neopicobia* includes eight species associated both with passeriform (Motacillidae, Cardinalidae, Fringillidae, Meliphagidae, Prunellidae, Troglodytidae, and Parulidae) and piciform (Picidae) birds (Skoracki 2011, Skoracki *et al.* 2008, 2010, 2014).

***Neopicobia hepburni* sp. nov.** (Figs 1–5)

Female (holotype). Total body length of holotype 430. *Gnathosoma*. Hypostomal apex tapering (Fig. 3). Infracapitulum and stylophore smooth. Peritremes M-shaped, median branches with 5–6 chambers, borders between chambers in lateral branches invisible (Fig. 4). Length of stylophore 120. *Idiosoma*. Propodonotal shield divided into 3 punctate sclerites, 2 narrow lateral parts bearing bases of setae *si* and *se* and central piece bearing bases of setae *vi*, *ve*, and *c1*. Lateral sclerites in anterior part connected with central shield in some

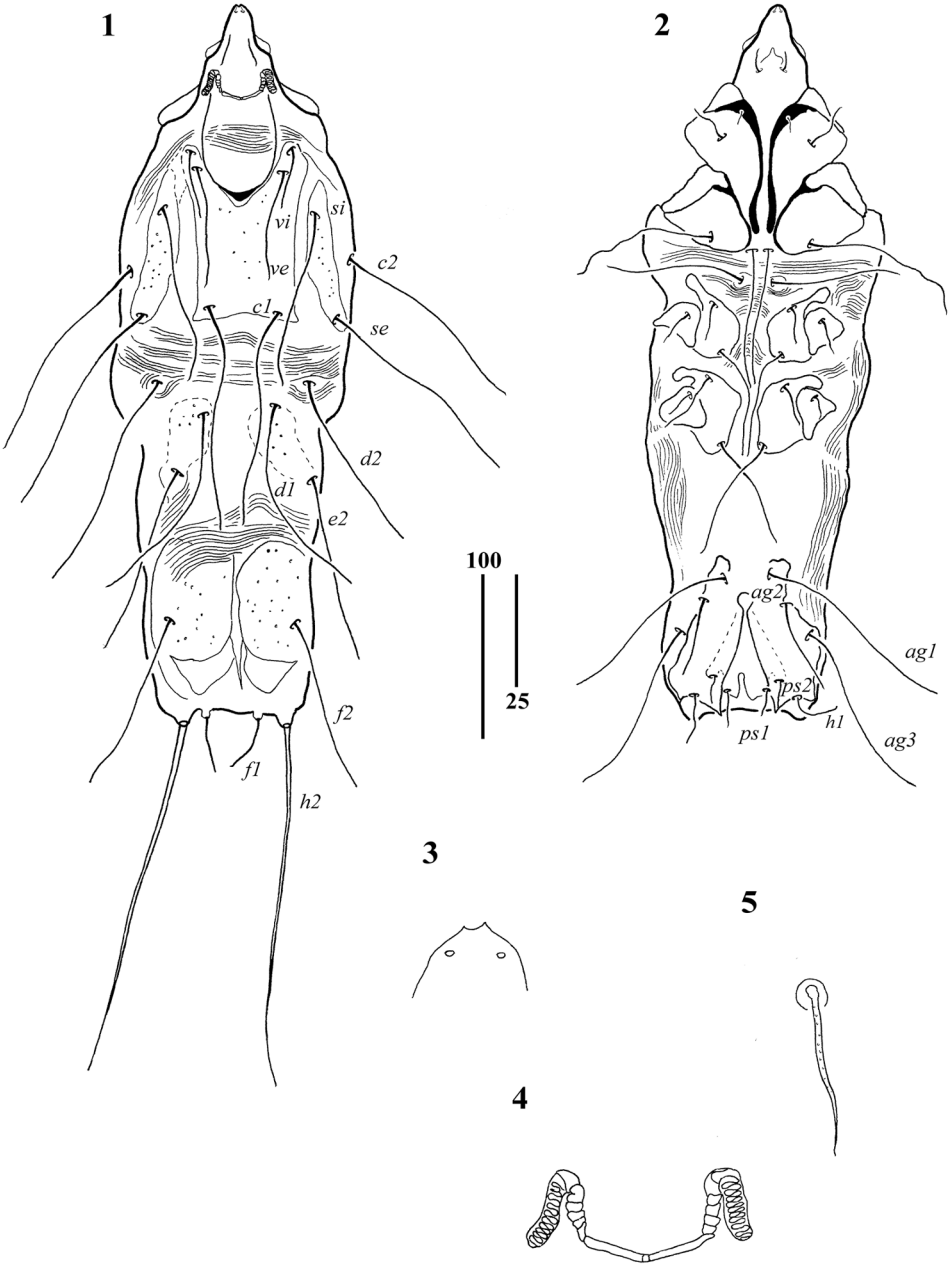

Fig. 1–5. *Neopicobia hepburni* sp. nov., female: 1 – dorsal view, 2 – ventral view, 3 – hypostomal apex, 4 – peritremes, 5 – propodonotal setae *vi*. Scale bars: 1, 2 = 100 μm; 3–5 = 25 μm

specimens. Setae *vi* bases situated anterior to level of *ve*. All dorsal setae verrucous (Fig. 5). Length ratio of setae *vi:ve:si* 1:2:2.7. Bases of setae *c1* and *se* at the same level. Hysteronotal shields bearing bases of setae *d1* and *e2*, punctate. Setae *d2:d1:e2* subequal in length. Pygidial shield well developed, with a vertical furrow and wing-like appendages, punctate, bearing bases of setae *f1* and *f2* (Fig. 1). Length ratio of setae *f2:f1* and *h2:h1* 2.7:1 and 7.3:1, respectively. Setae *f1*: and *h1* similar in length, *h2* about twice longer than *f2*. Setae *ag1* situated anterior to *ag2*. Length ratio of setae *ag1:ag2:ag3* 2:1:2. Genital setae absent. Two pairs of pseudanal setae present, *ps1* and *ps2* subequal in length. Genital plate well developed. Genital lobes present, covering bases of pseudanal setae. *Legs*. Apodemes I without small thorn-like protuberances. Coxal fields smooth. Setae *3c* about 2.2–3 times longer than *3b*. Antaxial and paraxial claws III-IV subequal in size. Setae *tc"* of legs III-IV ca. 1.6 times longer than *tc'*. *Lengths of setae: vi* 30 (35–40), *ve* (70), *si* 105 (85–95), *c2* 135 (95), *se* 130 (125), *c1* 155 (145), *d2* 140 (125), *d1* 145 (140), *e2* 130, *f1* 35 (30–35), *f2* 95, *h1* 30 (25), *h2* 220 (205–210), *ag1* (105–115), *ag2* (50–55), *ag3* 125 (105), *ps1* and *ps2* 15 (20), *tc'* 30, *tc"* 50, *l'RIII* 20 (25), *l'RIV* 30 (30), *3b* 20 (25), *3c* 60 (55), *4b* 30 (30), *4c* 80 (70).

MALE. Unknown.

Type material. Female holotype and 5 female paratypes from quill of body feathers of the Ecuadorian Piculet *Picumnus sclateri* Taczanowski (USNM 643859) (Piciformes: Picidae), PERU: Tumbes, El Caucho Biological Station, 6 June 2009, coll. B.K. Schmidt (mites sampled by E. Glowska).

Additional material. 4 females from quill of body feathers of the Olivaceous Piculet *Picumnus olivaceus* Lafresnaye, (USNM 643924) Peru: Tumbes, Campo Verde, 19 June, 2009, coll. B.K. Schmidt (mites sampled by E. Glowska).

Type deposition. Holotype female and 2 female paratypes are deposited in the USNM, 3 female paratypes in the Adam Mickiewicz University, Poznan, Poland (AMU).

Etymology. This new species is dedicated to Audrey Hepburn, British actress and humanitarian, for her unique personality and charm.

Differential diagnosis. *Neopicobia hepburni* sp. nov. is most similar to *Neopicobia ea* Skoracki et Unsoeld described from the Cream-colored Woodpecker *Celeus flavus* (St. Mueller) (Piciformes: Picidae) from Venezuela and additionally collected from the Chestnut Woodpecker *C. elegans* (St. Mueller) from Brazil and the Ringed Woodpecker *C. torquatus* (Boddaert) from Peru (Skoracki *et al.* 2014). In females of both species, the dorsal shields are punctate, dorsal setae are verrucous, bases of setae *se* and *c1* are situated almost at the same level, length ratio of setae *vi:ve* is *ca.* 1:2, setae *f1* and *h1* are subequal in length, setae *ps2* are situated at some distance with *ps1*. Females of *N. hepburni* are distinguishable from those of *N. ea* by the propodonotal shields divided into 3 sclerites, the pygidial shield with a vertical furrow and wing-like appendages, the presence of genital lobes, setae *f2* 2.7 times longer than *f1*, and length ratios of *ag1:ag2:ag3* equal 2:1:2. In females of *N. ea*, the propodonotal shield is entire, the pygidial shield is oval, without vertical furrow and appendages, the genital lobes are absent, setae *f2* are 4.5–5.5 times longer than *f1* and length ratios of *ag1:ag2:ag3* are 2.2–2.7:1:3–3.2.

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