

Brueelia balati sp. n. (Phthiraptera, Ischnocera), an ectoparasite of penduline tit (*Remiz pendulinus pendulinus*)

Ján KRÍŠTOFÍK

Institute of Zoology, Slovak Academy of Sciences, Dúbravská cesta 9, SK-84206 Bratislava, Slovakia;
e-mail: uzaekris@savba.sk

KRÍŠTOFÍK, J., *Brueelia balati* sp. n. (Phthiraptera, Ischnocera) an ectoparasite of penduline tit (*Remiz pendulinus pendulinus*). *Biologia, Bratislava*, 54: 139—142, 1999; ISSN 0006-3088.

Brueelia balati sp. n. is a new species of chewing louse (Insecta, Phthiraptera, Ischnocera) found on penduline tit (*Remiz pendulinus pendulinus*) (Passeriformes, Remizidae) in Moravia and Slovakia. The new species differs from the related species of the genus *Brueelia* by abdominal chaetotaxy, body size and male genitalia.

Key words: taxonomy, Phthiraptera, *Brueelia*, *Remiz pendulinus pendulinus*, Moravia, Slovakia.

Introduction

Chewing lice of the genus *Brueelia* Kelér, 1936 are ectoparasites of birds (Passeriformes, Piciformes, Coraciiformes). Their body length varies between 1–2 mm. They are uncommon, sometimes even sporadic (BALÁT, 1955) and live mostly on the feathers of bird sternum. Males and females of all species of the genus *Brueelia* show more or less differences in abdominal chaetotaxy and exhibit very little sexual dimorphism (ANSARI, 1956a). HOPKINS & CLAY (1952) recognised 144 species of *Brueelia* in the World. Actually they recognised only 120 species, with 24 names relegated to junior synonymy. In last decades, many authors have contributed to the knowledge of the species of the genus *Brueelia*, which are known as parasites of different Palaearctic Passeriformes (BLAGOVESHCHENSKIĪ, 1940; EICHLER, 1953, 1954; BALÁT, 1955, 1958, 1981, 1982; BECHET, 1961, 1966; FEDORENKO, 1975; MEY, 1982a, b). ANSARI (1956b, 1957) presented a revision of the species of this genus found on corvids, with descriptions of some new species. A

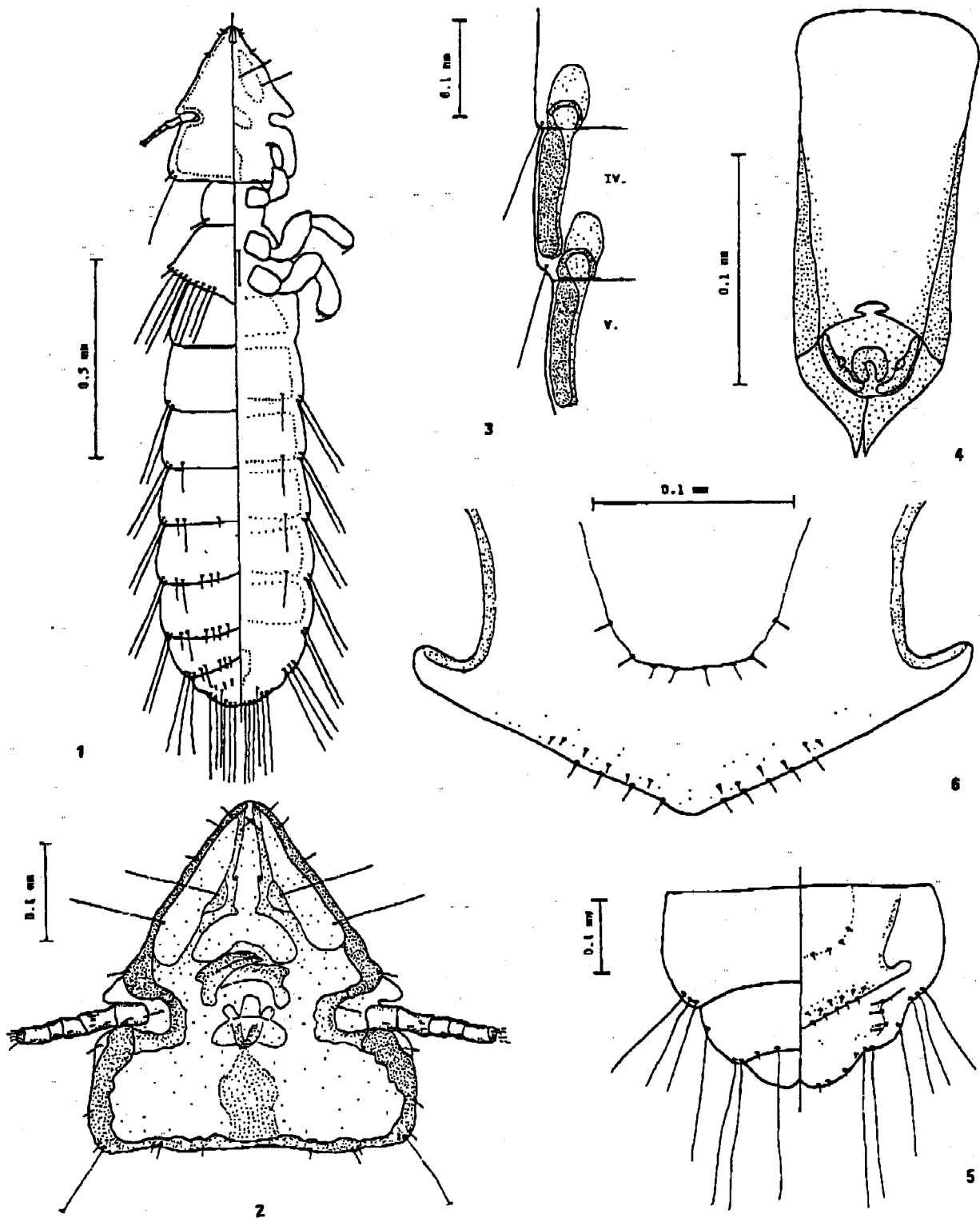
review of the knowledge on bionomics and taxonomy of the genus *Brueelia* in Europe can be found in papers by ZŁOTORZYŃKA (1964, 1977, 1997).

Material and methods

The chewing lice from penduline tits [*Remiz pendulinus pendulinus* (Linnaeus, 1758)] examined in this study come from the collections of F. Balát. They were collected in S Moravia (Czech Republic) and SW Slovakia in 1981–1989. The lice were conserved in 70% ethanol and mounted in permanent slides in Liquido de Swan. All measurements were made on adults and are given in millimetres (mm).

Brueelia balati sp. n.

Description. Male. Head triangular, anterior part of head contracted, temples rounded, occiput parallel sided (Fig. 1). Marginal and temporal carinae dark brown. Antennae brown, segment II longest, segments III and IV half as long as segment II. Dorsal suture well visible. Prothorax with convex lateral sides, posterior margin al-



Figs 1-6. *Bruceella balati* sp. n.: 1 - male; 2 - female head, ventral side; 3 - pleural structures on male abdominal segments IV - V; 4 - male genitalia; 5 - female terminal segments, dorsal and ventral side; 6 - vulvar chaetotaxy.

Table 1. Body measurements (in mm) and head index of *Brueelia balati* sp. n. males.

| | Holotype | Paratypes (n = 15) | |
|-------------------|----------|--------------------|--------------------|
| | | min-max | $\bar{x} \pm S.D.$ |
| Total length | 1.71 | 1.65-1.84 | 1.74 \pm 0.041 |
| Head length | 0.35 | 0.32-0.36 | 0.34 \pm 0.133 |
| Head width | 0.31 | 0.29-0.33 | 0.32 \pm 0.087 |
| Head index | 1.13 | 0.97-1.14 | 1.09 \pm 0.039 |
| Prothorax width | 0.20 | 0.19-0.21 | 0.20 \pm 0.006 |
| Pterothorax width | 0.32 | 0.31-0.35 | 0.33 \pm 0.127 |
| Abdomen width | 0.41 | 0.34-0.45 | 0.40 \pm 0.021 |

Table 2. Body measurements (in mm) and head index of *Brueelia balati* sp. n. females.

| | Allotype | Paratypes (n = 23) | |
|-------------------|----------|--------------------|--------------------|
| | | min-max | $\bar{x} \pm S.D.$ |
| Total length | 2.00 | 1.89-2.09 | 1.98 \pm 0.051 |
| Head length | 0.37 | 0.35-0.39 | 0.37 \pm 0.139 |
| Head width | 0.34 | 0.32-0.35 | 0.33 \pm 0.078 |
| Head index | 1.09 | 1.03-1.22 | 1.11 \pm 0.038 |
| Prothorax width | 0.20 | 0.20-0.23 | 0.22 \pm 0.061 |
| Pterothorax width | 0.34 | 0.33-0.36 | 0.35 \pm 0.074 |
| Abdomen width | 0.43 | 0.36-0.47 | 0.44 \pm 0.020 |

most straight, with one dorsal seta. Pterothorax trapezoidal, with 7-8 long tergal setae, one short seta on dorsal posterior margin, and one sternal seta on each side. Abdomen longitudinally ellipsoid, pleurites and sternites dark brown. Pleurite structure as in Fig. 3. Abdominal segments III-VII with 2 pleural setae, segment VIII with three pleural setae on each side. The sternites III-VI with one lateral seta on each side. Tergite IV with one lateral seta, tergites V-VIII with 2 lateral setae (one is long, the other half as long as the first one) on each side. Tergite V with one central seta, tergite VI with three, tergite VII with 4 and tergite VIII with three central setae on each side. Anal segment with 6-7 tergal and three sternal setae on each side. Genital apparatus as in Fig. 4. Body measurements and head index of males are in Table 1.

Female. Head triangular (Fig. 2), body larger than in male, with different abdominal chaetotaxy. Segments III-VII with 2 pleural setae, segment VIII with three setae on each side. Sternites III-VI with one lateral seta on each side. Tergites VI-VII with one lateral seta on each side. Segment IX with 4 tergal and 2 ventral setae on each side (Fig. 5). Genital plate oval, with 4 short lateral setae on segment VIII. Vulva with 10-11 marginal setae arranged in 2-3 rows on each side (Fig. 6).

Body measurements and head index of females are in Table 2.

Type host. *Remiz pendulinus pendulinus* (Linnaeus, 1758) (Passeriformes, Remizidae).

Material examined. Holotype: male, 27 Aug., 1985, Velký Dvůr u Pohofelic (48° 45' N, 16° 31' E), Moravia (Czech Republic). Allotype: female, 28 July, 1988, at the Nesyt fish-pond near Sedlec (48° 40' N, 16° 40' E), Moravia. Paratypes: 2 ♂♂, 1 ♀, 27 July, 1981, 3 ♂♂, 3 Apr., 1982, 2 ♂♂, 3 ♀♀, 15 Aug., 1985, 1 ♀, 27 July, 1985, 2 ♂♂, 7 ♀♀, 27 Aug., 1985, 1 ♀, 21 July, 1988, 2 ♀♀, 25 June, 1989, Velký Dvůr u Pohofelic; 6 ♂♂, 5 ♀♀, 28 July, 1988 at the Nesyt fish-pond near Sedlec; 3 ♀♀, 13 Aug., 1989, Jakubov (48° 25' N, 16° 57' E), Slovakia (all leg. Balát). All individuals were found on *Remiz pendulinus pendulinus*. Type material is deposited in Moravian Museum in Brno, Czech Republic.

Derivatio nominis. Name dedicated to František Balát, an outstanding Moravian ornithologist and mallophagologist, who described many species of the genus *Brueelia* living on Passeriformes.

Differential diagnosis. *Brueelia balati* sp. n. differs from the related congeners *B. blagovescenskyi* Balát, 1955, an ectoparasite of *Emberiza schoeniclus* (Linnaeus, 1758), and *B. delicata* (Nitzsch, 1866), an ectoparasite of *E. citrinella* Linnaeus, 1758, by abdominal chaetotaxy. In *B. blagovescen-*

skyi, segment III bears one pleural seta, segments IV–VII bear 1–2 setae and segment VIII 3 pleural setae on each side. Tergites VI–VII in males bear 2 tergal setae on each side and have no central seta. In *B. delicata*, segments IV–VI bear one pleural seta, segment VII 1–2 setae, segment VIII 3 setae on each side (MEY, 1982a). *B. balati* sp. n. differs from the 2 above species by male genitalia (MEY, 1982a) and adults body size (*B. blagovescenskyi* male 1.28–1.35 mm, female 1.49–1.69 mm; *B. delicata* male 1.28–1.30 mm, female 1.65–1.77 mm) (BALÁT, 1955).

B. balati sp. n. differs also from related congeners *B. conocephala* (Blagoveshchenskiĭ, 1940), an ectoparasite of *Sitta europaea* Linnaeus, 1758, and *B. weberi* Balát, 1982, an ectoparasite of *Parus major* Linnaeus, 1758 by abdominal chaetotaxy. In *B. conocephala* segment III bears one pleural seta, segments IV–VII 2 setae and segment VIII 3 pleural setae on each side. In females, sternites III–VI bear one lateral seta on each side and tergites VI–VII one long lateral seta on each side (BLAGOVESHCHENSKIĬ, 1940).

According to BALÁT (1982), *B. weberi* differs from *B. conocephala* by slender body, blunter and shorter trabeculae, obviously thicker antennae and head index (*B. weberi* 1.23–1.27, *B. conocephala* 1.33).

From both above species, *B. balati* sp. n. differs also by body length of adults. Body length of *B. conocephala* is 1.53–1.55 mm (male), 1.76–1.84 mm (female) (BLAGOVESHCHENSKIĬ, 1940), while that of *B. weberi* is 1.50 mm (male), 1.90–1.94 mm (female) (BALÁT, 1982).

The new species differs from *Brueelia densilimba* (Nitzsch, 1866), an ectoparasite of the genus *Carduelis* Brisson, 1760, by abdominal chaetotaxy: segment III–VII with one pleural seta, VIII with 3 pleural setae on each side (BLAGOVESHCHENSKIĬ, 1940), completely different shape of male genitalia and of body length (male 1.5–1.6 mm, female 1.6–1.7 mm) (ZŁOTORZYCKA, 1977).

Acknowledgements

The author thanks to J. KOLIBÁČ (Moravian Museum, Brno) for loan of the material from the collection of F. BALÁT.

References

ANSARI, M. A. R. 1966a. Studies on *Brueelia* species (Mallophaga) occurring on true thrushes. *Biologia, Lahore* 2: 102–143.

- ANSARI, M. A. R. 1956b. A revision of the *Brueelia* (Mallophaga) species infesting the Corvidae. Part I. *Bull. Brit. Mus. (Natur. Hist.), Entomology* 4: 371–406.
- ANSARI, M. A. R. 1957. A revision of the *Brueelia* (Mallophaga) species infesting the Corvidae. Part II. *Bull. Brit. Mus. (Natur. Hist.), Entomology* 5: 145–182.
- BALÁT, F. 1955. Přispěvek k poznání všenek rodu *Brueelia* I. *Práce Brněn. Zákł. Českoslov. Akad. Věd* 28: 499–524.
- BALÁT, F. 1958. Beitrag zur Kenntnis der Mallophagenfauna der bulgarischen Vögel. *Práce Brněn. Zákł. Českoslov. Akad. Věd.* 30: 397–421.
- BALÁT, F. 1981. A contribution to the knowledge of biting lice (Mallophaga) found on passerines (Passeriformes). *Folia parasit.* 28: 273–282.
- BALÁT, F. 1982. Zwei neue Federlinge (Mallophaga) aus Serrahn. *Zool. Rdbfr. Neubrandenbg.* 2: 43–47.
- BECHET, I. 1961. Două specii noi de *Brueelia* Kéler (Mallophaga). *Stud. Univ. Babeş-Bolyai, Ser. Biol.* 2: 153–157.
- BECHET, I. 1966. O specie nouă de *Brueelia* (Insecta, Mallophaga), *Brueelia melanocoryphae* n. sp. parazită pe *Melanocorypha c. calandra* (L.) (Aves). *Stud. Univ. Babeş-Bolyai, Ser. Biol.* 1: 79–81.
- BLAGOVESHCHENSKIĬ, D. I. 1940. Mallophaga s ptits Talysha. *Parasit. Sbor.* 8: 25–90.
- EICHLER, W. 1953. Von Alexander Koenig gesammelte Federlinge I. Von Singvögeln und Spechten. *Bonner zool. Beitr.* 4: 333–343.
- EICHLER, W. 1954. Deutsche Federlinge I. Genus *Brueelia*. *Nachr. Naturwiss. Mus. Stadt Aschaffenburg* 42: 59–66.
- FEDORENKO, I. A. 1975. Novye vidy pukhoedov roda *bryuelia* *Brueelia* (Mallophaga, Ischnocera) vorobinykh ptits Ukrainy. *Vest. Zool.* 10: 46–51.
- HOPKINS, G. H. E. & CLAY, T. 1952. A check list of the genera & species of Mallophaga. *British Museum (Natur. Hist.), London*, 362 pp.
- MEY, E. 1982a. Mongolische Mallophagen I. *Mitt. Zool. Mus. Berlin* 58: 155–195.
- MEY, E. 1982b. Mongolische Mallophagen II. *Reichenbachia* 20: 59–65.
- ZŁOTORZYCKA, J. 1964. Mallophaga parasitizing Passeriformes and Pici II. *Brueeliinae*. *Acta parasit. pol.* 12: 239–430.
- ZŁOTORZYCKA, J. 1977. Klucze do oznaczania owadów Polski. *Wszoly-Mallophaga*, zeszyt 4, nadrodzina Philopteroidea: rodzina Philopteridae. Państwowe Wydawnictwo Naukowe, Warszawa, 123 pp.
- ZŁOTORZYCKA, J. 1997. *Wszoly* (Mallophaga) Część szczegółowa Goniodidae i Philopteridae. *Wydawnictwo Uniwersytetu Wrocławskiego (Acta Univ. Wroclaw. No 1989)*, 308 pp.

Received 12 October, 1998

Accepted 21 January, 1999