

## SYSTEMATICS, MORPHOLOGY AND PHYSIOLOGY

Two New Species of *Brueelia* (Phthiraptera: Philopteridas s. l.) Parasitic on Two Species of *Phrygilus* (Aves: Emberizidae) from ChileA.C. CICHINO<sup>1</sup> AND D. GONZÁLEZ-ACUÑA<sup>2</sup>

<sup>1</sup>Lab. Artrópodos, Depto. Biología, Univ. Nacional de Mar del Plata, Funes 3300, 7600 Mar del Plata, Buenos Aires Province, Argentina. Research Career of the National Council of Scientific and Technical Research (CONICET) [cicchino@copetel.com.ar](mailto:cicchino@copetel.com.ar)

<sup>2</sup>Depto. Ciencias Pecuarias, Facultad de Medicina Veterinaria, Univ. Concepción, Chillán, Chile; [danigonz@udec.cl](mailto:danigonz@udec.cl)

*Neotropical Entomology* 37(3):301-304 (2008)

Dos Nuevas Especies de *Brueelia* (Phthiraptera: Philopteridae s. l.) Parásitos en dos Especies de *Phrygilus* (Aves: Emberizidae) de Chile

RESUMEN - Dos nuevas especies del género *Brueelia* Kéler, 1936 son descritas en dos especies de aves del género *Phrygilus* Cabanis, 1844 desde Punitaqui, Coquimbo, IV Región, Chile: *Phrygilus gayi* (Gervais, 1834) y *P. fruticeti* (Kittlitz, 1833). Las descripciones son hechas en forma comparativa agregando comentarios sobre sus especies afines, así como consideraciones de las especies conocidas de *Brueelia* que infestan fringílicos sudamericanos.

PALABRAS CLAVE: Insecto, piojo, Sudamérica, taxonomía

ABSTRACT - Two new species of the genus *Brueelia* Kéler, 1936 are described of two species in the genus *Phrygilus* Cabanis, 1844 from Punitaqui, Coquimbo, IV Región, Chile: *Phrygilus gayi* (Gervais, 1834) and *P. fruticeti* (Kittlitz, 1833). Descriptions were made in a comparative form, adding comments on their relatives, as well as an account of all *Brueelia* species known to infest South American Emberizine finches.

KEY WORDS: Insecta, louse, South America, taxonomy

The genus *Brueelia* Kéler, 1936 contains several species described from continental South American Emberizine Finches (Burmeister 1838; Cicchino 1982, 1983; Valim & Palma 2006), from species in the genera *Sicalis* Boie, 1828, *Volatinia* Reichenbach, 1850 *Buarremon* Bonaparte, 1850 *Atlapetes* Wagler, 1831 *Coryphospingus* Cabanis, 1851, and *Paroaria* Bonaparte, 1832, but none off *Phrygilus* Cabanis, 1844. By this, it is our aim to propose two new species parasitic on *Phrygilus gayi* (Gervais 1834) and *P. fruticeti* (Kittlitz, 1833), describing them in a comparative form, providing also comments of their morphological affinities with their closest relatives and a list of all known species of *Brueelia* parasitic Emberizine finches in the Neotropics.

means of a calibrated eyepiece, all expressed in millimeters and identified by the following abbreviations: HL head length, POW preantennal width, OW maximum width of the head, PL prothorax length, PW prothorax width, PTW pterothorax width, AL abdominal length, AW maximum width of the abdomen, TL total body length. Measurements include ranges and means and standard deviation within parentheses.

Repository of specimens: holotype and a portion of paratypes in the collection of Museo de La Plata, La Plata, Buenos Aires Province, Argentina. Remaining paratypes in the collections of Departamento de Ciencias Pecuarias, Facultad de Medicina Veterinaria, Universidad de Concepción, Chillán, Chile.

### Material and Methods

Lice used in this study were collected at Punitaqui (30° 50 S, 71° 125' W), a locality of the Coquimbo Province, belonging to the IV Region of Chile. Lice were slide-mounted in synthetic Canada Balsam following conventional procedures. Drawings were made using a *camera lucida* attached to a Bausch & Lomb compound microscope. All measurements were taken from mounted specimens by

### Results and Discussion

Both species described below share the following somatic characteristics:

1) Head noticeably longer than short, 2) forehead uniformly parabolic, 3) marginal carina not too thickened, internally sinuose, 4) paratergite III always with 1 seta, 5) tergal plates too lightly pigmented, 6) small sutural setae on males present

at least from hemitergite V to VII, 7) postspiracular long seta and accessory median seta present in males on VI-VII, and also a postspiracular medium long seta inconspicuously present on V, 8) 3-4 posterior small tergal setae on VIII in males, 9) sternites III-VI darker pigmented than tergites, being somewhat lighter near the middle, 10) females with long postspiracular seta on VI-VII, 11) paramera of the male external genitalia with their outer margin broadly concave, 12) female vulva with 3-4 medium long and 2-3 short and somewhat spiniform setae each side.

They show morphological similarities with *Brueelia*-species infesting species of *Sturnella* Vieillot, 1816 *sensu* Short (1968) (see Cicchino & Castro 1996) by having the following features: 1) gena and subgenal areas and hypostomal, occipital and postoccipital sutures (in the sense of Symmons 1952) not markedly pigmented, 2) female vulva with at most three (rarely four in some individuals) short and spiniform setae each side, 3) pulvinal edge of frontoclypeal suture lacking pigmented maculae, and hypostomal, occipital and postoccipital sutures not markedly pigmented, 4) males with postspiracular seta present on tergite V (rarely inconspicuous in some individuals).

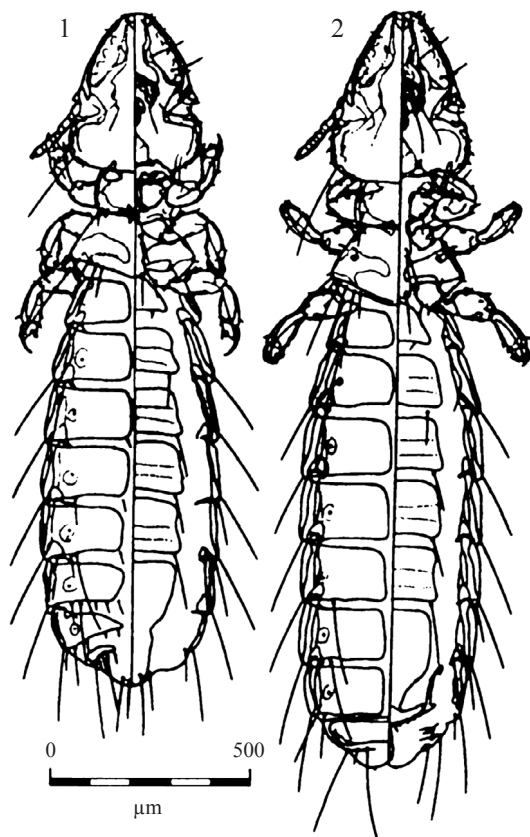
They differ chiefly in the following: 1) paratergites with their outer margin strongly pigmented, being the internal one much paler (in *Sturnella*-parasite species all paratergites are darkly and uniformly pigmented), 2) paramera of the male genitalia with outer margin markedly concave (almost straight in the *Sturnella*-parasite species).

### *Brueelia coquimbana* new species

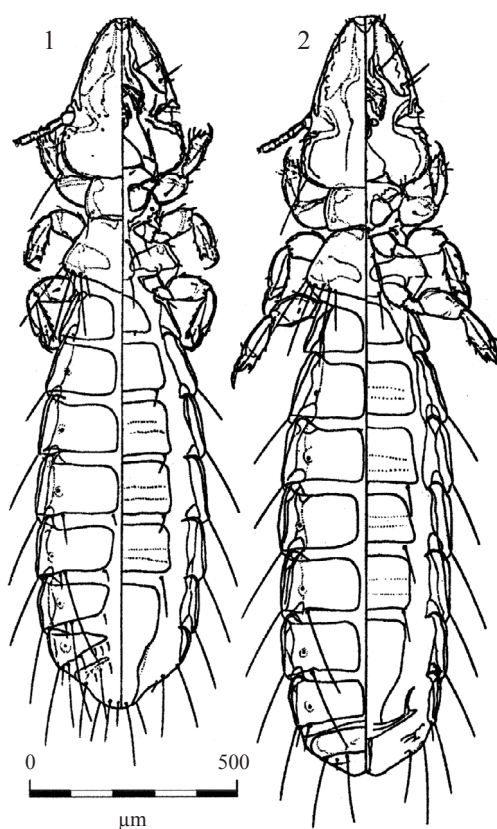
(Figs. 1-2, 5, 7, 9, 15)

**Male.** Head ovate, cephalic index (HL/OW)  $\sim 1.18$ . Preantennal portion of the head shorted, preantennal length/POW 0.65. Abdomen short, AL/AW  $\sim 2.29$ . Small sutural setae on V-VII, inconspicuous in IV. Two tergal posterior setae on VII. Paratergal setae: II 0, III 1, IV-VIII 1-2. Genitalia (Fig. 9) with lateral sclerites of the mesosome bearing 6-7 small rugae on their posterior margins. Body measurements: HL 0.347-0.355 ( $0.350 \pm 0.005$ ), POW 0.247-0.258 ( $0.253 \pm 0.006$ ), OW 0.284-0.292 ( $0.288 \pm 0.004$ ), PL 0.121, PW 0.205-0.211 ( $0.209 \pm 0.003$ ), PTL 0.147-0.163 ( $0.154 \pm 0.008$ ), PTW 0.284-0.300 ( $0.293 \pm 0.008$ ), AL 0.921-0.995 ( $0.953 \pm 0.040$ ), AW 0.374-0.413 ( $0.396 \pm 0.020$ ), TL 1.500-1.600 ( $1.544 \pm 0.051$ ).

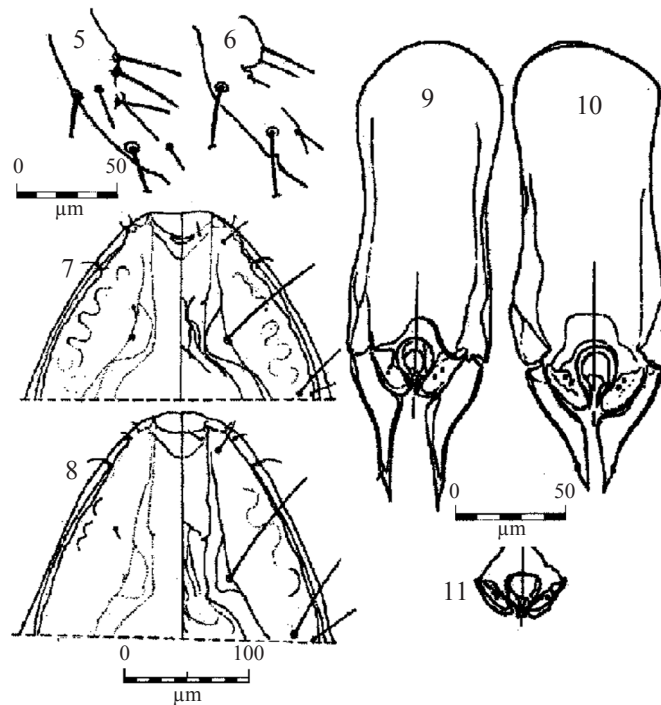
**Female.** Reminiscent of male, being the preantennal portion of the head somewhat longer, preantennal length/POW  $\sim 0.69$ . Paratergal chaetotaxy: II 0, III-V 1, VI-VII 2. Vulval chaetotaxy: four long and three spiniform setae each side (Fig. 15). Body measurements: HL 0.363-0.374 ( $0.370 \pm 0.006$ ), POW 0.261-0.268 ( $0.264 \pm 0.004$ ), OW 0.255-0.268 ( $0.261 \pm 0.006$ ), PL 0.124-0.139 ( $0.136 \pm 0.008$ ), PW 0.189-0.198 ( $0.195 \pm 0.005$ ), PTL 0.171-0.197 ( $0.161 \pm 0.014$ ), PTW 0.292-0.305 ( $0.291 \pm 0.007$ ), al 1.047-1.097 ( $1.069 \pm 0.026$ ), AW 0.400-0.418 ( $0.408 \pm 0.009$ ), TL 1.673-1.760 ( $1.711 \pm 0.045$ ).



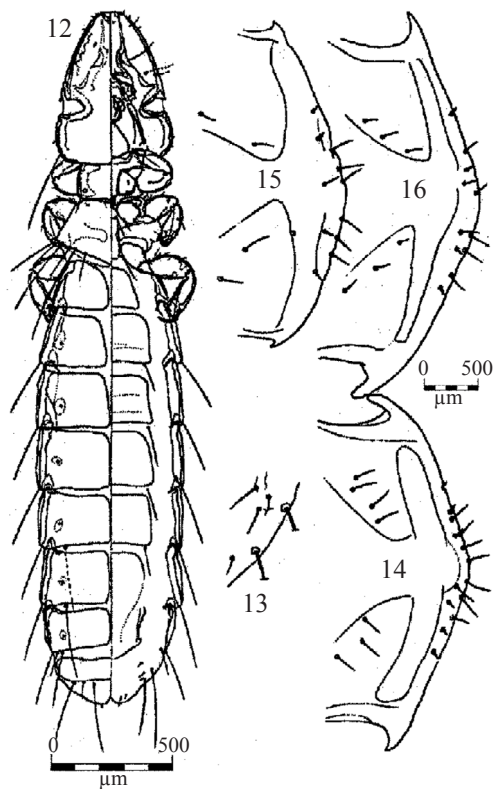
Figs. 1-2. *Brueelia coquimbana* sp. nov., 1. Male, 2. Female.



Figs. 3-4. *Brueelia yal* sp. nov., 3. Male, 4. Female.



Figs. 5-11. 5-6. Gonapophysis of 5. *B. coquimbana*, 6. *B. yal*; 7-8. Male foreheads of: 7. *B. coquimbana*, 8. *B. yal*; 9-10. Male external genitalia of 9. *B. coquimbana*, 10. *B. yal*, 11. *idem*, mesosomal complex of other individual.



Figs. 12-16. 12-14. *Brueelia yal* sp. nov, female from Uyuni, Bolivia; 12. Female, 13. Gonapophysis, 14. Vulva (see text for more explanations). 15-16. Female vulvae of: 15. *B. coquimbana*, 16. *B. yal*.

**Type host.** *Phrygylus gayi* (Gervais, 1834), the Grey-hooded Sierra-Finch.

**Etymology.** The specific epithet "coquimbana" refers to the Coquimbo Province, Chile.

**Specimens examined.** Male holotype and four male and four female paratypes, Punitaqui, Coquimbo, IV Región, Chile, 12-VII-1981.

***Brueelia yal* new species**

(Figs. 3,4,6, 8, 10-14, 16 )

**Male.** Head ellipsoid, cephalic index 1.29. Preantennal portion of the head noticeably elongated, preantennal length/POW ~0.79. Abdomen longer, AL/AW ~2.46. No tergal posterior setae on VII. Genitalia (Figs. 10-11) with lateral sclerites of the mesosome bearing 4-5 (less frequently six) small rugae on their posterior margins. Body measurements: HL 0.358-0.363 (0.361 ± 0.003), POW 0.239-0.247 (0.244 ± 0.005), OW 0.282-0.284 (0.283 ± 0.005), PL 0.113-0.116 (0.116 ± 0.003), PW 0.174-0.183 (0.177 ± 0.005), PTL 0.166-0.176 (0.171 ± 0.005), PTW 0.274, AL 0.934-0.984 (0.964 ± 0.026), AW 0.368-0.400 (0.379 ± 0.018), TL 1.560-1.616 (1.595 ± 0.028).

**Female.** Reminiscent of male, being the preantennal portion of the head somewhat longer, preantennal length/POW ~0.84. Vulval chaetotaxy: 3-4 long and two spiniform setae each side (Figs. 14, 16). Body measurements: HL 0.416-0.426 (0.423 ± 0.006), POW 0.263-0.280 (0.270 ± 0.009), OW

0.311-0.321 (0.316 ± 0.005), PL 0.132-0.142 (0.135 ± 0.006), PW 0.195, PTL 0.168-0.195 (0.184 ± 0.014), PTW 0.297, AL 1.147-1.221 (1.181 ± 0.037), AW 0.447-0.463 (0.452 ± 0.009), TL 1.831-1.942 (1.888 ± 0.056).

**Type host.** *P. fruticeti* (Kittlitz, 1833), the Mourning Sierra-Finch.

**Etymology.** The specific epithet “yal” refers to the common name used in Chile and Argentina for this species.

**Remarks.** We examined a female supposedly collected off *Phrygylus carbonarius* (d’Orbigny & Lafresnaye 1837), the Carbonated Sierra-Finch, from Bolivia, which is indistinguishable from this new species. It must be noted that the alleged Finch species do not reach Bolivia, and probably represent a misidentification, being most probably *P. fruticeti*, which is common in most parts of Bolivia.

**Specimens examined.** Male holotype and 14 male and 14 female paratypes, Punitaqui, Coquimbo, IV Región, Chile, VI-VIII-1981. Other specimen: one female ex *P. carbonarius* (probably error), Uyuni, Bolivia 4-II-1938, M. A. Carriker.

## References

- Burmeister, H.C.C. 1838. Zweite (8.) Zunft. Pelzfresser. Mallophaga Nitzsch., p.418-443. In Handbuch der Entomologie, Volume 2, Berlin.
- Cicchino, A.C. 1982. Contribución al conocimiento de los malófagos argentinos XII. Cuatro nuevas especies del género *Brueelia* Kéler, 1936 parásitas de Emberizidae y Tersinidae (Aves, Passeriformes). Rev. Soc. Entomol. Argentina 41: 279-288.
- Cicchino, A.C. 1983. Especies nuevas o poco conocidas del género *Brueelia* Kéler, 1936 (Mallophaga, Philopteridae) parásitas de Passeriformes, Piciformes y Trogoniformes americanos (Aves). Rev. Soc. Entomol. Argentina 36: 283-303.
- Cicchino, A.C. & D. del C. Castro. 1996. Revisión preliminar de las especies del género *Brueelia* Kéler, 1936 (Phthiraptera, Philopteridae) parásitas de Icterinae (Aves, Passeriformes, Fringillidae). Graellsia 52: 3-30.
- Short Jr., L.L. 1968. Sympatry of red breasted meadowlarks in Argentina, and the taxonomy of meadowlarks (Aves: *Leistes*, *Pezistes* and *Sturnella*). Am. Mus. Novitates 2349: 1-30.
- Symmons, S. 1952. Comparative anatomy of the Mallophagan head. Trans. Zool. Soc. London 27: 349-436.
- Valim, M.P. & R.L. Palma. 2006. A new species of *Brueelia* Kéler, 1936 (Phthiraptera: Ischnocera: Philopteridae) from the blue-black grassquit (Aves: Passeriformes: Emberizidae) in Brazil. Zootaxa 1153: 27-32.

Received 07/V/07. Accepted 28/XI/07.

---