



Chewing lice (Insecta: Phthiraptera) from parrots and parakeets of the genera *Cyanoliseus* and *Enicognathus* in Chile and Argentina, with descriptions of a new species

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Abstract

The following three species of parrots: *Enicognathus leptorhynchus* (King) (Choroy = Slender-billed Parakeet), *E. ferrugineus* (-Müller) (Cachaña = Austral Parakeet) and *Cyanoliseus patagonus* (Vieillot) (Tricahue or Barranquero Parrot = Burrowing Parrot) from Southern Chile and Argentina were examined for chewing lice. Four louse species were found: *Psittacobrossus patagoni* Price and Beer and *Heteromenopon macrurum* (Eichler) ex the Austral Parakeet, *Paragoniocotes meridionalis* Guimarães, *H. macrurum* and *P. patagoni* ex the Burrowing Parrot, and *H. macrurum* and a new species of *Paragoniocotes* Cummings ex the Slender-billed Parakeet and the Austral Parakeet. *P. meridionalis* is a new record for Chilean fauna, and *E. leptorhynchus* is a new host for *H. macrurum*. *Paragoniocotes enicognathidis* n. sp. is described and illustrated, discussing the morphological affinities with its close relatives.

Key words: Insecta, new species, taxonomy, South America, louse

Introduction

There are not records of chewing lice (Insecta: Phthiraptera) on birds of the Psittacidae (Aves: Psittiformes) in Chile. In Argentina, Mey *et al.* (2002) recorded specimens of *Heteromenopon macrurum* (Eichler, 1952) (Amblycera, Menoponidae sensu lato) and *Paragoniocotes meridionalis* Guimarães, 1975 (Ichnocera, Philopteridae sensu lato) on the barranquero parrot *Cyanoliseus patagonus patagonus* (Vieillot) in Río Negro, while Cicchino and Castro (1998a and 1998b) reported *Heteromenopon macrurum* (like *H. subpilosum*), *Psittacobrossus patagoni* Price & Beer 1968 and *P. meridionalis* on *C. p. patagonus* and *P. patagoni* on *Enicognathus ferrugineus* (Müller).

The original description of *H. macrurum* was made using specimens collected from *Falco sparverius* (L.) and *Sterna paradisaea* collected in the locality of Corral, Región de los Ríos, Chile. These are erroneous hosts according to Price and Beer (1967). Palma (1975) proposed that the real host of *H. macrurum* is *Myopsitta monachus monachus* (Boddaert, 1783). On the other hand, Mey *et al.* (2002) assumed that the *H. macrurum* specimens collected in Corral probably came from one of the three parrots species studied here (choroy, cachaña or tricahue).

Material and methods

Between March 1964 and April 2006, chewing lice from wild parrots were collected in various locations in

Chile and Argentina (specific localities are given in Table 1). Eight *Enicognathus leptorhynchus* (King), two *E. ferrugineus*, four *C. patagonus patagonus* and four *C. p. byroni* were examined. Most of the Chilean lice came from parrots captured for other purposes and a few came from road kills, thus the numbers of lice expressed in Table 1 do not necessarily represent the true abundance on each host, but the number of lice recovered from them. Lice were initially stored in alcohol 70% then slide-mounted in Canada Balsam (Price *et al.* 2003). The type material was deposited in the zoological collection of the Facultad de Ciencias Veterinarias, Universidad de Concepción. Remaining specimens were deposited in the same collection and in the Departamento de Entomología of the Museo de La Plata (Buenos Aires, Argentina). Vouchers of other louse species are held in the same institutions. The following codes were used in referencing measurements: HL = maximum head length, POW = pre-ocular width, OW = maximum occipital width, PL = maximum prothorax length, PW = maximum prothorax width, PTL = maximum pterothorax length, PTW = maximum pterothorax width, AL = maximum abdomen length, AW = maximum abdomen width, TL = total body length. All measurements are expressed in millimeters (mm), and express the range of each struture.

Results and discussion

Four phthirapteran species including *H. macrurum* (N=1) and *Psittacobrossus patagoni* (N=2) from the host *E. ferrugineus*, *Paragoniocotes meridionalis* (N=3), *H. macrurum* (N=6) and *P. patagoni* (N=1) from the host *C. patagonus*, and *H. macrurum* (N=17) and *Paragoniocotes enicognathidis* **sp. nov.** (N=139) from the host *E. leptorhynchus* were collected. Table 1 shows the louse species found on the different parrots.

TABLE 1. Lice isolated according to host species and collection location, indicating lice species, sex, and quantity.

Host species	Collection location	Lice species found	Lice number			
			Male	Female	Nymph	Total
<i>Cyanoliseus patagonus byroni</i>	Curanilahue, Chile (37° 28' 27"; 73° 20' 33")	<i>Heteromenopon macrurum</i>	1	3	2	6
	Curanilahue, Chile (37° 28' 27"; 73° 20' 33")	<i>Psittacobrossus patagoni</i>	0	0	1	1
	Talca, Chile (35° 26' 19"; 71° 40' 03")	<i>Paragoniocotes meridionalis</i>	2	0	0	2
	Río Azufre, Chile (34° 47' 52"; 70° 29' 06")	<i>Paragoniocotes meridionalis</i>	1	0	0	1
<i>Cyanoliseus patagonus patagonus</i>	La Boca, Río Negro, Argentina (41° 02' 58"; 65° 50' 02")	<i>Heteromenopon macrurum</i>	9	4	8	21
		<i>Psittacobrossus patagoni</i>	2	2	0	4
		<i>Paragoniocotes meridionalis</i>	2	2	0	4
<i>Enicognathus ferrugineus</i>	Nilahue, Chile (34° 38' 48"; 71° 44' 03")	<i>Heteromenopon macrurum</i>	0	1	0	1
	Nilahue, Chile (34° 38' 48"; 71° 44' 03")	<i>Psittacobrossus patagoni</i>	1	1	0	2
	El Bolsón, Río Negro, Argentina (41° 56' 28"; 71° 29' 29")	<i>Heteromenopon macrurum</i>	0	1	0	1
		<i>Psittacobrossus patagoni</i>	3	6	2	11
		<i>Paragoniocotes enicognathidis</i>	1	3	0	4
<i>Enicognathus leptorhynchus</i>	Santiago, Chile (33° 27' 03"; 70° 38' 21")	<i>Heteromenopon macrurum</i>	11	5	1	17
	Nahueltoro, Chile (36° 28' 58"; 71° 46' 00")	<i>Paragoniocotes enicognathidis</i>	58	76	5	139

The genus *Psittacobrossus* Carriker 1954 contains 20 species, all of which are from New World psittacid species (Price *et al.* 2003). In the present study, *P. patagoni* was found on *C. p. byroni*, *C. p. patagonus* and *E. ferrugineus*.

The genus *Heteromenopon* includes 15 species (Price *et al.* 2003) that are exclusively found on Neotropical psittacids (Psittacinae), and the Australian-New Zealand Nestorinae (Nestorini) and Psittacinae (Platycercini) (Price & Beer, 1967). The Neotropical and Australian-New Zealand assemblages constitutes two distinctive and divergent groups, recognized by Price & Beer (1967) with subgeneric rank (*Heteromenopon* (*Heteromenopon*) Carriker, 1954, and *H.* (*Keamenopon*) Price & Beer, 1967, respectively). The species described by Cicchino & Castro in 1977 *Heteromenopon subpilosum* as a parasite of *C. patagonus* is a synonym of *H. macrurum* (Mey *et al.* 2002, Price *et al.* 2003). *H. macrurum* was found on the three parrot species studied here, and *E. leptorhynchus* is a new host for this louse. Still, it is not clear how specimens of *H. macrurum* could have contaminated a *Falco* (Falconidae) and a *Sterna* (Laridae) captured in southern Chile. Palma (1975) assumed that the ectoparasites accidentally changed host when they were manipulated without strict control during the skinning process.

According to Hopkins & Clay (1952), the genus *Paragoniocotes* possesses 48 species, whereas Mey *et al.* (2002) indicate 45. However, Price *et al.* (2003) consider several of these names to be synonyms and reduced the genus to 32 species. The genus has a highly heterogeneous assemblage of species (Guimarães, 1975), which has created uncertainty about generic limits, with some authors choosing to erect new genera (v. g. *Avipediculus* Eichler 1952, *Mausolus* Eichler, 1952).

The four chewing lice species found in the present study, *P. meridionalis*, *P. patagoni* and *H. macrurum* have been described in Argentina on *C. p. patagonus*, and the last two were also found on *E. leptorhynchus* and *E. ferrugineus*.

***Paragoniocotes enicognathidis*, Cicchino and González-Acuña, new species**

(Figs. 1–7)

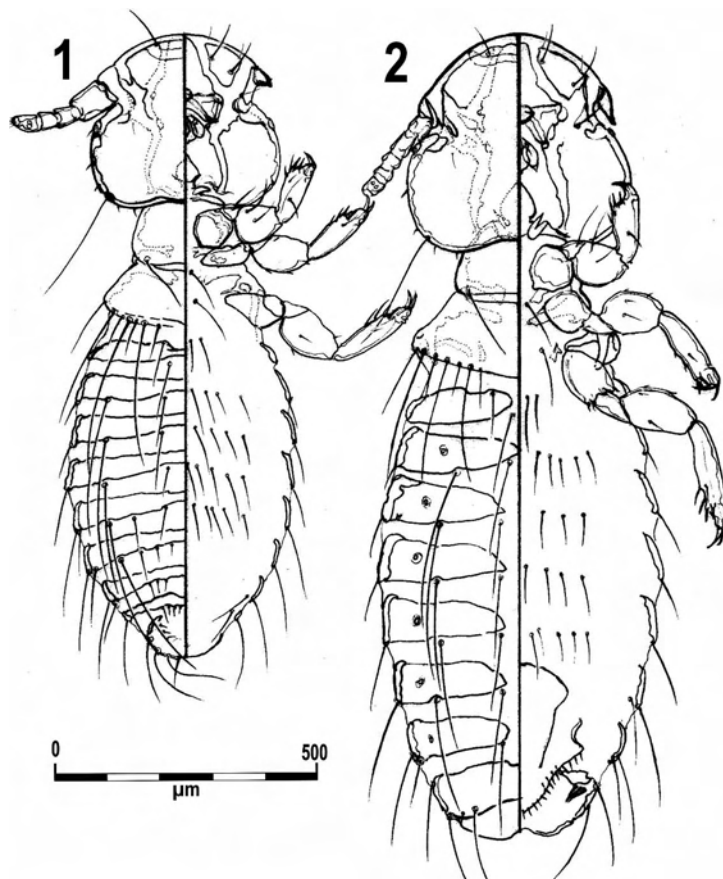
Type-host. *Enicognathus leptorhynchus* (King, 1831), the Slender-billed Parakeet.

Other host. *Enicognathus ferrugineus* Müller, 1776, the Austral Parakeet.

Etymology: the specific epithet refers to the pertinance to the host's genus, *Enicognathus*.

Diagnosis. A member of the Group "C" of Guimarães (1947) (= group "B" of Carriker, 1950), differing in both sexes by the broadly rounded anterior aspect of the head. Very close to *P. aratingae* Guimarães, 1947 in general habitus and body measurements, although it is easily distinguishable by the shape of the head in both sexes.

Male. (Fig. 1): Head wider than long; preantennal region much shorter than the postantennal, with the anterior margin flatly and uniformly round. Coni reduced to a small triangular process projecting on the anterior margin of the first antennal segment. First antennal segment well developed, a little longer than the next two together; segments III and V with lappet-like projection on distal posterior margin, where the latter is much less apparent except for when the antenna is at rest (Fig. 4, arrows), and is much less apparent when it is slightly bent upwards (Fig. 3, arrows). Pterothorax with 7 setae of different lengths on each side of posterior margin. Abdomen ovate, noticeably longer than the head and thorax together; with complete tergites and thinner medially, tergite II deeply and largely indented medially. Tergocentral setae distributed on each side of the abdomen as follows: segment II–V with 1 tergocentral seta each side, VI–VIII with 2–3. Sternal plate with indistinct outline at least on segments II to V. Five rows of setae on sternal face probably corresponding to segments II–VI, II with 4 setae, III–IV with 8, and V–VI with 10. Paratergal chaetotaxy: II 0, III–VI 1, VII–VIII 2. Genitalia keeping the same general shape of the other species of the group C, differs in minor details and proportions as can seen in Fig. 5. Caudal portion of endomerale complex folded in resting position (Fig. 5, arrow), which spreads considerably when in activity (Fig. 6, arrow). Measurements: HL 0.298–0.310, POW 0.310–0.333, OW 0.333–0.357, PL 0.131–0.155, PW 0.190–0.214, PTL 0.095–0.124, PTW 0.298–0.321, AL 0.583–0.655, AW 0.405–0.464, TL 1.112–1.190.



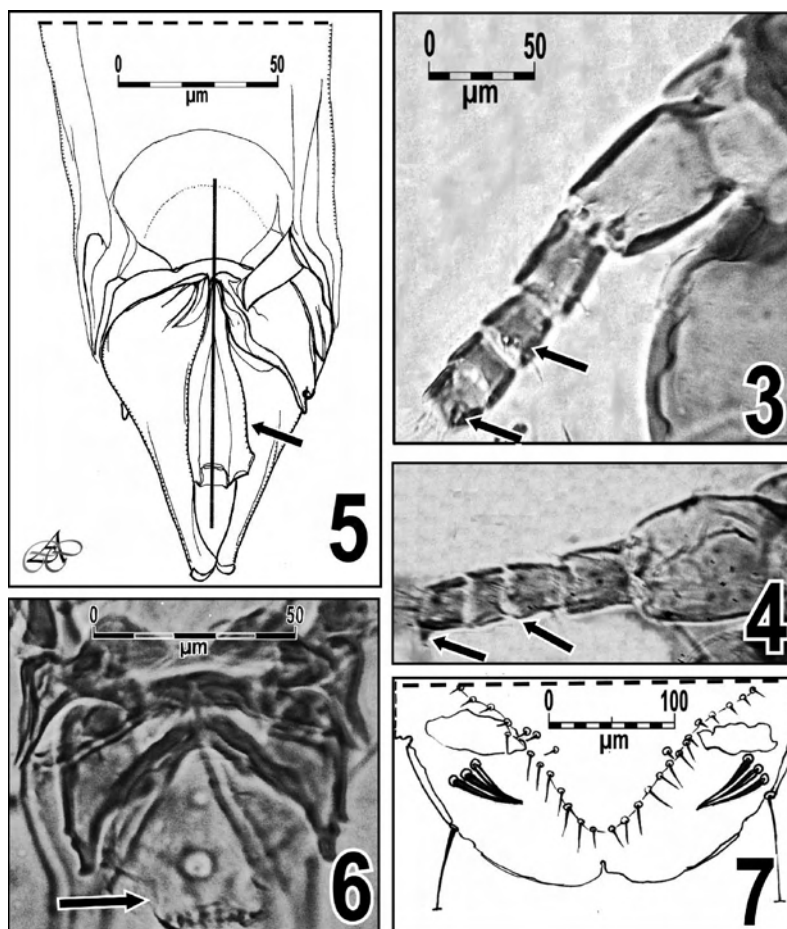
FIGURES 1–2. *Paragoniocotes enicognathidis* sp. nov. 1 male, 2 female, dorsal and ventral views.

Female. (Fig. 2). Preantennal region longer than in the male and outlined in a perfect arch of circle (Figs. 2). Coni as usual for typical species of *group C* of Guimaraes (1947) (= *group B* of Carriker, 1950), large, spur-like and directed backwards. Antennae filiform (Figs. 2). Pterothorax chaetotaxy as in the male. Abdomen broadly ellipsoidal and, as in other species of the same species-group, with tergites II–VIII interrupted on the midline, with one tergoventral seta on each side. Tergite IX+X notched in the middle of its anterior border (Figs 2). Ventral terminalia of abdomen (Fig. 7) much like *P. aratingae* (see Guimarães, 1947: 291 Fig. 22). Genital plate cuneiform, elongated, with the anterior margin semicircular. Vulva tapering towards the back and having, on each side, 8–10 short setae and 7–9 spine-like setae. The 3 subapical spine-like setae, found on either side of the vulva, are robust and sub-equal in shape and length (Fig. 7). Measurements: HL 0.357–0.381, POW 0.345–0.357, OW 0.381–0.393, PL 0.138–0.160, PW 0.207–0.231, PTL 0.131–0.143, PTW 0.333–0.357, AL 0.810–0.857, AW 0.512–0.538, TL 1.405–1.464.

Type material. Holotype male, ex *E. leptorhynchus*, CHILE: Nahueltoro, Ñuble Province, Bío-Bío Region, 22-X-2002, D. González-Acuña coll. Paratypes: 5 males, 5 females same data as holotype.

Other material. one male, three females, ex *E. ferrugineus*, ARGENTINA: El Bolsón, Río Negro Province, 26-III-1964, A. C. Cicchino coll. Holotype and a part of the paratypes in the Facultad de Medicina Veterinaria, Universidad de Concepción, Chillán collection.

Remarks. This new species is readily distinguished in both sexes from its allied *P. aratingae* Guimarães, 1947, *P. pyrrhurae* Guimarães, 1947 and *P. venezolanus* Stafford, 1943 by the peculiar inflated and rounded shape of the head, both in the pre-antennal and temporal margins. Additionally, proportions of endomerall complex and shortened head in the male add features to separate from males of the cited species.



FIGURES 3–7. *Paragoniocotes enicognathidis* sp. nov. 3 and 4 male left antenna, dorsal and frontal views (arrows indicate lappet-like projection on distal posterior margin of segments III and V), 5 and 6 male external genitalia (5 whole view, dorsal and ventral, arrow shows caudal portion of endomer complex folded in resting position; 6 photograph of the endomer complex, arrow shows caudal portion of endomer complex spread in activity), 7 female vulva and spine-like adjacent setae.

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