

## A new species of *Centrorhynchus* (Acanthocephala, Centrorhynchidae) endoparasite of *Guira guira* (Aves, Cuculidae) from Argentina

L. I. LUNASCHI, F. B. DRAGO

Laboratorio de Helminología, División Zoología Invertebrados. Museo de La Plata, Facultad de Ciencias Naturales y Museo, Paseo del Bosque S/Nº, 1900 La Plata, Buenos Aires, Argentina, E-mail: [lunaschi@fcnym.unlp.edu.ar](mailto:lunaschi@fcnym.unlp.edu.ar)

### Summary

*Centrorhynchus guira* n. sp. is described from the guira cuckoo, *Guira guira* (Gmelin) (Cuculiformes: Cuculidae), from Argentina. This new species is characterized by the proboscis armament with 32 longitudinal rows (29 with 18 hooks per row and 3 with 19 hooks per row) and by the following hook pattern per row: 8 – 9 true hooks, 4 transitional hooks with lateral alate processes, and 6 spiniform hooks. The presence of transitional hooks is shared with five other Neotropical species in the genus: *C. polymorphus*, *C. albidus*, *C. microcephalus*, *C. kuntzi* and *C. crotophagicola*. Among these species, *C. guira* n. sp. most closely resembles *C. kuntzi* in having transitional hooks with lateral alate processes, however differs in the number of hooks per row and spiniform hooks. This is the first record of the genus *Centrorhynchus* parasitizing Argentinian birds. A key to the species of the Neotropical *Centrorhynchus* Lühe 1911 is presented.

Keywords: Centrorhynchidae; *Centrorhynchus guira* n. sp.; *Guira guira*; Cuculidae; Argentina

### Introduction

The species of *Centrorhynchus* Lühe 1911 uses birds and mammals as definitive hosts, terrestrial arthropods as intermediate hosts, and amphibious, reptiles or insectivorous mammals as transport or paratenic hosts. To date, of the 97 species of *Centrorhynchus* known worldwide, only eight have been reported in the Neotropical Region, 7 of them are endemic and one was found in the Nearctic Region (Table 1). Particularly in Argentina, where the acanthocephalan fauna is insufficiently known, adults of *Centrorhynchus tumidulus* (Rudolphi 1819) were reported parasitizing the intestine of didelphid marsupials (Boero & Boehringer, 1967) and juveniles of *Centrorhynchus* sp. parasitizing the snakes *Clelia rustica* (Cope) and *Leptophis ahaetulla marginatus* (Cope) (Colubridae) (Vizcaino,

1993; Lamas & Lunaschi, 2009).

The purpose of this paper is to describe a new species of *Centrorhynchus* obtained from the intestine of the guira cuckoo, *Guira guira* (Gmelin), from Formosa province, north eastern Argentina.

### Materials and methods

Mature specimens of acanthocephalans were obtained from the guira cuckoo, *Guira guira*, from La Marcela farm (26°17'35"S; 59°06'67"W), Pirané, Formosa Province, Argentina. The birds were dissected, and the viscera were removed and examined under a stereoscopic microscope. Acanthocephalans collected alive were extended in distilled water prior to fixation, and then fixed in 5 % formaldehyde, stored in 70 % alcohol. Some specimens were cleared as temporary mounts in lactophenol and studied using light microscopy. Other specimens were dried using the critical point method, examined under a scanning electron microscope (Jeol 6360 LV, Tokyo, Japan) and photographed. Female specimens were dissected to analyze details of reproductive system. The number of proboscis hook rows was counted from specimens prepared for SEM. Measurements are given in millimeters (mm), unless otherwise indicated; range is followed by the mean in parentheses. The pattern of hooks per row is expressed as the number of true hooks + number of hooks of transition + number of spiniform hooks.

The material has been deposited in the Helminthological Collection of the Museo de La Plata (MLP), Buenos Aires, Argentina.

### Results and Discussion

*Centrorhynchus guira* n. sp. (Figs. 1–2)

Description: Based on 10 mature specimens (5 males and 5 females). Body elongated, filiform, with sexual dimor-

Table 1. Records to the species of the Neotropical *Centrorhynchus* Lühe from birds, indicating their hosts and geographical distributions

Species	Hosts	Locality	References
<i>Centrorhynchus albidus</i> Meyer, 1932	<i>Actinia plumbea</i> (Gmelin) Falconidae indeterminate	Nicaragua Paraguay	Schmidt & Neiland (1966) Golvan (1956)
<i>Centrorhynchus crotophagicola</i> Schmidt & Neiland, 1966	<i>Crotophaga sulcirostris</i> Swainson <i>Piaya cayana</i> (Linnaeus)	Nicaragua	Schmidt & Neiland, 1966
<i>Centrorhynchus giganteus</i> Travassos, 1919	<i>B. meridionalis</i> <i>Leptodon cayanensis</i> (Latham)	Brazil Brazil	Travassos (1926); Magalhães Pinto & Noronha (1972) Travassos (1926)
<i>Centrorhynchus kuntzi</i> Schmidt & Neiland, 1966	<i>B. magnirostris</i> <i>Buteo jamaicensis</i> (Gmelin) <i>Buteo lineatus</i> (Gmelin) <i>Buteo platypterus</i> (Vieillot) <i>Bubo virginianus</i> (Gmelin)	Nicaragua USA USA USA USA	Schmidt & Neiland (1966) Nickol (1983); Richardson & Nickol (1995) Nickol (1983) Nickol (1983) Nickol (1983)
<i>Centrorhynchus microcephalus</i> (Bravo Hollis, 1947) Golvan, 1956	<i>Quiscalus mexicanus mexicanus</i> (Gmelin) <sup>a</sup>	Mexico	Bravo Hollis, 1947
<i>Centrorhynchus nicaraguensis</i> Schmidt & Neiland, 1966	<i>Dromococcyx phasianellus</i> (Spix)	Nicaragua	Schmidt & Neiland (1966)
<i>Centrorhynchus polymorphus</i> Travassos, 1925	<i>Bubulcus ibis</i> (Linnaeus) <i>Micrastur ruficollis</i> (Vieillot)	Puerto Rico Brazil	Whittaker et al. (1971) Travassos (1926)
<i>Centrorhynchus tumidulus</i> (Rudolphi, 1819)	<i>Attila rufus rufus</i> (Vieillot) <sup>b</sup> <i>Batara cinerea</i> (Vieillot) <i>Buteo magnirostris</i> (Gmelin) <sup>c</sup> <i>Buteo magnirostris magniplumis</i> (Bertoni) <sup>d</sup> <i>Buteo magnirostris nattereri</i> (Sclater & Salvin) <sup>e</sup> <i>Buteogallus meridionalis</i> (Latham) <i>Coccyzus melacoryphus</i> Vieillot <sup>f</sup> <i>Crotophaga ani</i> Linnaeus <i>Crotophaga major</i> Gmelin <i>Guira guira</i> <i>Leucopternis albicollis</i> (Latham) <i>Megascops choliba</i> (Vieillot) <sup>g</sup> <i>Tyto alba pratincola</i> (Bonaparte) <sup>h</sup>	Brazil Brazil Brazil Brazil Brazil Brazil Brazil Brazil Venezuela Brazil Brazil Uruguay Brazil Brazil Brazil	Travassos (1926) Travassos (1926) Machado Filho (1940) Machado Filho (1941) Travassos (1923, 1926) Machado Filho (1941) Travassos (1926) Travassos (1926); Machado Filho (1941) Díaz Ungria & Gracia Rodrigo (1960) Travassos (1926); Machado Filho (1940) Travassos (1926); Machado Filho (1940, 1941); Cordero (1933) Travassos (1926) Travassos (1926)

<sup>a</sup> Cited as *Cassidix mexicanus mexicanus*<sup>b</sup> Cited as *Attila cinereus* (Gmelin)<sup>c</sup> Cited as *Rupornis magnirostris* (Gmelin)<sup>d</sup> Cited as *Rupornis magnirostris supercilialis* (Vieillot)<sup>e</sup> Cited as *Rupornis magnirostris nattereri* (Sclater & Salvin)<sup>f</sup> Cited as *Coccyzus melanocoryphus* Vieillot<sup>g</sup> Cited as *Pisorhina choliba* Vieillot<sup>h</sup> Cited as *Strix perlata* (Lichtenstein)

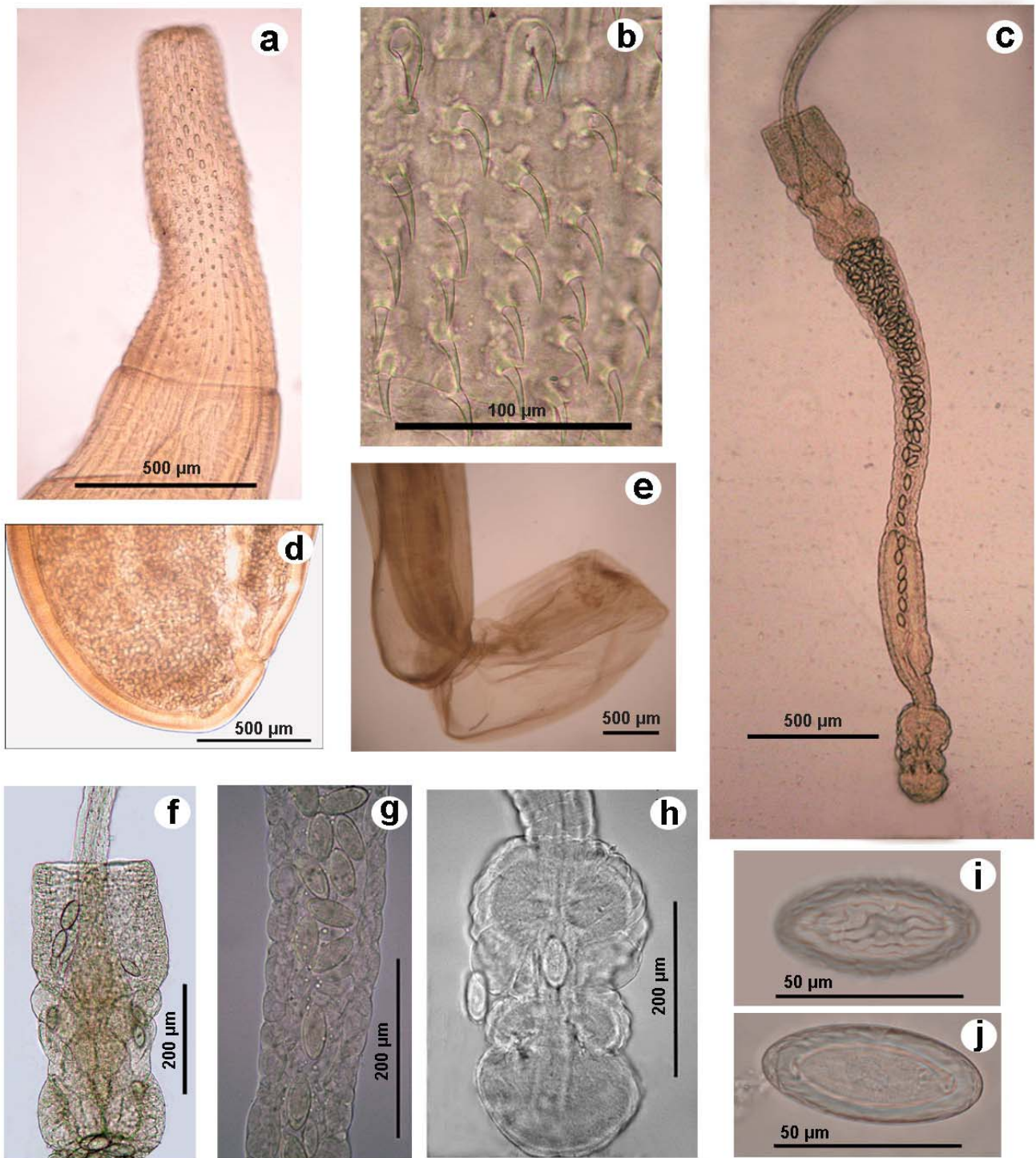


Fig. 1. Microphotographs of *Centrorhynchus guira* n. sp. **a** - proboscis armament; **b** - detail of transitional hooks; **c** - female, reproductive system; **d** - female, posterior end; **e** - male, posterior end with everted copulatory bursa; **f** - detail of uterine bell; **g** - detail of uterus; **h** - vagina showing 2 sphincters; **i** - egg, superficial view; **j** - egg, detail of acanthor and middle shell without polar prolongations.

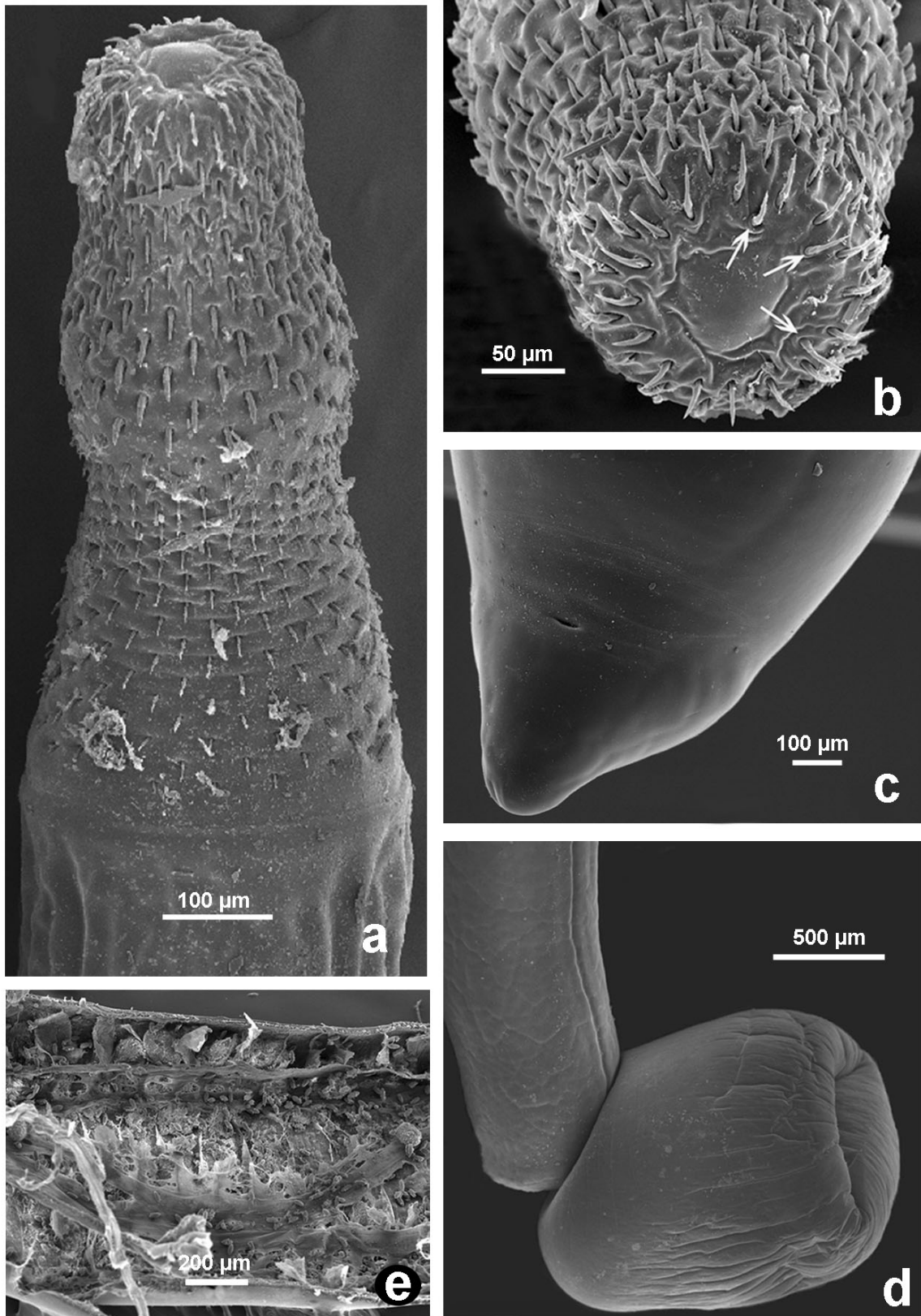


Fig. 2. SEM micrographs of *Centrorhynchus guira* n. sp.: **a** - proboscis armament, lateral view; **b** - proboscis armament, apical view, showing longitudinal rows with 19 hooks per row (arrow); **c** - female, posterior end; **d** - male, posterior end with everted copulatory bursa; **e** - internal anatomy showing an apparent segmentation.

Table 2. Comparative data of males of *Centrorhynchus guira* n. sp. and related species

	<i>C. guira</i>	<i>C. albidus</i>	<i>C. crotophagicola</i>	<i>C. kuntzi</i>	<i>C. microcephalus</i>	<i>C. polymorphus</i>
Body length	26.9 – 31.9	12	up to 30	10 – 29	19.35 – 21.58	6.5
Proboscis length	0.79 – 0.97	0.93 – 1.25	0.64 – 0.66	0.82 – 1.30	0.64 – 0.70	–
width	–	–	0.20 – 0.38	–	0.24 – 0.26	–
Anterior portion proboscis length	0.53 – 0.68	–	–	–	–	0.42 – 0.58
width	0.28 – 0.38	0.26	0.23 – 0.27	0.29 – 0.35	–	0.38 – 0.42
Posterior portion proboscis length	0.20 – 0.34	–	–	–	–	0.25 – 0.30
width	0.34 – 0.52	0.33	0.35 – 0.38	0.31 – 0.53	–	0.50 – 0.70
Neck length	30 – 68 $\mu$ m	18 $\mu$ m	53 – 65 $\mu$ m	–	–	–
width	0.41 – 0.51	0.37	0.37 – 0.40	–	–	–
Trunk length	26.1 – 30.9	–	–	–	–	–
width	–	1.0	1.4	0.7 – 1.8	0.9 – 0.98	1.2
Anterior trunk length	4.4 – 5.4	–	–	–	–	–
width	1.02 – 1.28	–	–	–	–	–
Proboscis receptacle length	1.4 – 1.6	1.16 – 1.25	1.36 – 1.53	–	1.28 – 1.34	0.8 – 1.0
width	0.34 – 0.48	0.24	0.21 – 0.34	–	0.26 – 0.28	0.2 – 0.3
Lemnisci length	1.94 – 2.34	1.46 – 2.5	2.38 – 2.55	–	1.1 – 1.5	1.2 – 2
width	0.31 – 0.43	–	–	–	0.22 – 0.26	–
Anterior testis length	1.06 – 1.20	–	–	–	0.7 – 0.94	–
width	0.54 – 0.63	0.57 – 1.0	1.0	0.50 – 1.10	0.54 – 0.66	0.20
Posterior testis length	1.11 – 1.29	0.28	0.50 – 0.60	0.11 – 0.46	0.92 – 1.04	0.25
width	0.51 – 0.66	–	–	–	0.50 – 0.68	–
Säfftigen's pouch length	2.71 – 2.97	–	–	1.2 – 2.0	2.9 – 4.4	–
width	0.54 – 0.87	–	–	–	–	–
Copulatory bursa length	2.09 – 2.14	–	2.0	–	1.3 – 2.8	–
width	1.23 – 2.03	–	2.2 – 2.7	–	–	–
References	Present study	Schmidt & Neiland (1966)	Schmidt & Neiland (1966)	Nickol (1983)	Bravo Hollis (1947)	Travassos (1926)

phism, females longer than males. Posterior end of females dilated and rounded. Proboscis nearly cylindrical, divided into 2 portions by constriction at level of insertion of the proboscis receptacle; anterior portion of proboscis almost cylindrical, slightly swollen at level of last true hooks; posterior portion conical. Neck short. Trunk cylindrical, with evident swelling in anterior region and internal pseudosegmentation. Proboscis receptacle with double wall. Cerebral ganglion oval, situated approximately in the middle of the proboscis receptacle. Lemnisci digitiform, longer than proboscis receptacle. Proboscis armament consists of 32 longitudinal rows; 29 longitudinal rows with 18 hooks per row and 3 longitudinal rows with 19 hooks per row. First 8 – 9 true hooks, longer, with posteriorly directed roots, swollen at base; in alternating rows, the last true hooks are smaller; next 4 hooks transitional with roots directed anteriorly (the first with 4 lateral alate-processes and the last with slender root swollen at base); remaining 6 hooks on posterior portion of proboscis, spiniform. Pattern of hooks per row: 8 – 9 + 4 + 6.

Male. Body 26.9 – 31.9 (28.8) in total length. Proboscis 0.79 – 0.97 (0.86) long; anterior portion elongated 0.53 – 0.68 (0.59) long, 0.28 – 0.38 (0.31) wide; posterior portion 0.20 – 0.34 (0.27) long, 0.34 – 0.52 (0.40) wide. First 7 true hooks: blade 38 – 48 (41)  $\mu\text{m}$  long, root 45 – 60 (49)  $\mu\text{m}$  long; last true hook: blade 24 – 31 (27)  $\mu\text{m}$  long, root 21 – 36 (29)  $\mu\text{m}$  long; transitional hooks: blade 19 – 33 (26)  $\mu\text{m}$  long, root 17 – 21 (20)  $\mu\text{m}$  long; spiniform hooks: 14 – 26 (21)  $\mu\text{m}$  long. Neck 30 – 68 (47)  $\mu\text{m}$  long, 411 – 513 (460)  $\mu\text{m}$  wide. Trunk 26.1 – 30.9 (27.9) long; anterior trunk widened 4.4 – 5.4 long, 1.02 – 1.28 wide, separated from remainder trunk by a constriction. Proboscis receptacle, 1.4 – 1.6 (1.5) long, 0.34 – 0.48 (0.41) wide. Lemnisci 1.94 – 2.34 (2.14) long, 0.31 – 0.43 (0.39) wide. Testes oval, located in tandem, contiguous or slightly overlapping one another in anterior part of trunk; anterior testis 1.06 – 1.20 (1.14) long, 0.54 – 0.63 (0.59) wide, situated at 0.94 – 1.54 (1.22) from proboscis receptacle; posterior testis 1.1 – 1.29 (1.20) long, 0.51 – 0.66 (0.60) wide. Cement glands 3, tubular, situated immediately posterior to hind testis. Säftigen's pouch conspicuous, 2.71 – 2.97 (2.88) long, 0.54 – 0.87 (0.75) wide. Genital pore terminal. Copulatory bursa, rounded or cylindrical when fully everted, 2.09 – 2.14 (2.11) long, 1.23 – 2.03 (1.63) wide.

Female. Body 38.8 – 50.4 (43.6) in total length. Proboscis 0.92 – 1.0 (0.95) long; anterior portion 0.48 – 0.69 (0.60) long, 0.34 – 0.48 (0.39) wide; posterior portion 0.31 – 0.43 (0.35) long, 0.44 – 0.49 (0.47) wide. First 7 true hooks: 40 – 48 (43)  $\mu\text{m}$  long, root 36 – 64 (49)  $\mu\text{m}$  long; last true hook: blade 31 – 36 (34)  $\mu\text{m}$  long, root 36 – 45 (40)  $\mu\text{m}$  long; transitional hooks: blade 21 – 29 (26)  $\mu\text{m}$  long, root 14 – 26 (19)  $\mu\text{m}$  long; spiniform hooks: 17 – 28 (22)  $\mu\text{m}$  long. Neck 39 – 68 (54)  $\mu\text{m}$  long, 478 – 522 (506)  $\mu\text{m}$  wide. Trunk 37.8 – 49.4 (42.6) long; anterior trunk widened 5.57 – 5.88 (5.70) long; 1.10 – 1.43 (1.26) wide, separated from remainder trunk by a constriction. Proboscis receptacle 1.69 – 1.77 (1.73) long, 0.37 – 0.46 (0.42) wide.

Lemnisci 1.8 – 2.71 (2.43) long, 0.24 – 0.39 (0.29) wide. Female genital tract (measured from opening of uterine bell to genital pore in one dissected specimen) 2.63 in length from opening of uterine bell to genital pore; uterine bell 0.34 long, 0.25 wide; uterus 1.7; vagina 0.34 long, provided with 2 sphincters. Genital pore ventral, subterminal, at 0.29 – 0.53 (0.44) from tip posterior end. Eggs elongated, without polar prolongations and with outer shell corrugated, 53 – 63 x 24 – 29 (57 x 27)  $\mu\text{m}$ .

Type host: *Guira guira* (Gmelin) (guira cuckoo) (Cuculiformes: Cuculidae)

Site of infection: intestine.

Type locality: La Marcela farm (26°17'35"S; 59°06'67"W), Pirané, Formosa Province, Argentina.

Specimens deposited: MLP N° 5945 (holotype male); N° 5946 (allotype female); N° 5947 – 5950 (paratypes)

Etymology: The new species is named after the specific name of the host.

#### Remarks

According to Golvan (1956), in the species of the genus *Centrorhynchus* the number of longitudinal rows, number of hooks per row, size of the blades and morphology and size of roots are the characteristics with greater taxonomic value. Golvan (1960) described three types of hooks in this genus: true, spiniform and transitional. These last hooks are characterized by having roots directed anteriorly and lateral alate processes, and can be absent in some species. The presence of transitional hooks readily distinguishes the specimens obtained from *G. guira* from most of the Neotropical species of *Centrorhynchus*. At present, five species have been reported with transitional hooks: *Centrorhynchus polymorphus* Travassos 1925, *Centrorhynchus albidus* Meyer 1932, *Centrorhynchus microcephalus* (Bravo Hollis 1947) Golvan 1956, *Centrorhynchus kuntzi* Schmidt & Neiland 1966, *Centrorhynchus crotophagicola* Schmidt & Neiland 1966. Among these species, *C. kuntzi* is the most similar species to *C. guira* n. sp., by having transitional hooks with lateral alate processes as describe Golvan (1960), and the first of them with 4 alate processes. However, this species differs mainly in the number of hooks per row (22 – 27 versus 18 – 19) and spiniform hooks (14 – 18 versus 6), and by possessing a digitiform papilla at posterior end (Schmidt & Neiland, 1966; Nickol, 1983). In addition, the measurements of body, testes, Säftigen's pouch and eggs are smaller than *C. guira* n. sp. (Table 2, 3).

The remaining species differ mainly from the new species in having transitional hooks without lateral alate processes. The proboscis armature of *C. albidus* differs from that observed in the new species by having a lesser number of longitudinal rows (28 – 30), a greater number of hooks per row (20 – 22), and a different pattern of hooks per row (8 + 4 + 10) (Schmidt & Neiland, 1966; Fig. 5). The females differ by having smaller body and eggs, whereas the males differ in the size of body and testes (Table 2, 3). The proboscis armature of *C. crotophagicola* is similar to *C. guira*

Table 3. Comparative data of females of *Centrorhynchus guira* n. sp. and related species

	<i>C. guira</i>	<i>C. albidus</i>	<i>C. crotophagicola</i>	<i>C. kuntzi</i>	<i>C. microcephalus</i>	<i>C. polymorphus</i>
Body length	38.8 – 50.4	16	up to 42	30	20 – 48	24.4 – 43.06
Proboscis length	0.92 – 1.0	1.25	0.75	0.87	0.87 – 1.71	0.64 – 0.68
width	–	–	–	–	–	0.26 – 0.28
Anterior portion proboscis length	0.48 – 0.69	–	–	–	–	–
length	0.34 – 0.48	–	0.27	0.29	0.29 – 0.41	0.42 – 0.58 0.38 – 0.42
width	–	–	–	–	–	–
Posterior portion proboscis length	0.31 – 0.43	–	–	–	–	0.25 – 0.30
length	0.44 – 0.49	–	0.39	0.46	0.36 – 0.59	0.50 – 0.70
width	–	–	–	–	–	–
Neck length	39 – 68 µm	–	53 – 55 µm	21 µm	–	–
width	0.48 – 0.42	–	0.38 – 0.40	0.46	–	–
Trunk length	37.8 – 49.4	–	–	–	–	–
width	–	0.62	1.4	2.0	1.0 – 2.0	1.04 – 1.36
Anterior trunk length	5.57 – 5.88	–	–	–	–	–
width	1.10 – 1.43	–	–	–	–	–
Proboscis receptacle length	1.69 – 1.77	1.25	1.36 – 1.53	1.43	–	1.26 – 1.30
width	0.37 – 0.46	–	0.21 – 0.34	0.29	–	0.24 – 0.30
Lemmings length	1.8 – 2.71	2.5	2.38 – 2.55	2.21	–	1.10 – 1.30
width	0.24 – 0.39	–	–	0.31	–	–
Female genital tract length	2.63	–	2.0	1.94	1.2 – 2.1	–
Uterine bell length	0.34	–	–	–	–	–
width	0.25	–	–	–	–	0.3
Uterus length	1.7	–	–	–	–	–
Vagina length	0.34	–	–	–	–	–
Eggs length	53 – 63 µm	42 µm	50 µm	41 – 42 µm	–	0.8 – 0.94
width	24 – 29 µm.	20 µm	21 µm	15 – 17 µm	41 – 60 µm	53 – 61 µm
References	Present study	Schmidt & Neiland (1966)	Schmidt & Neiland (1966)	Schmidt & Neiland (1966)	Nickol (1983)	Bravo Hollis (1947)
						Travassos (1926)

**Key to the Neotropical species of *Centrorhynchus***

1 - Proboscis armature without transitional hooks.....	2
1' - Proboscis armature with transitional hooks.....	4
2 - Hooks true with anterior and posterior roots, 24 – 26 longitudinal rows of hooks, 27 – 28 hooks per rows; 16 – 17 + 0 + 11.....	<i>C. giganteus</i> Travassos 1919
2' - Hooks true with roots of different shape, 26 – 39 longitudinal rows of hooks.....	3
3 - Proboscis armed with 26 longitudinal rows of hooks, 20 – 21 hooks per rows; 13 + 0 + 7 – 8 .....	<i>C. tumidulus</i> (Rudolphi 1819)
3' - Proboscis armed with 39 longitudinal rows of hooks, 17 hooks per rows; 5+ 0 + 12.....	<i>C. nicaraguensis</i> Schmidh & Neiland 1966
4 - Hooks transitional with lateral alate processes, first transitional hook with 4 processes .....	5
4' - Hooks transitional without lateral alate processes.....	6
5 - Proboscis armed with 26 – 35 longitudinal rows and 22 – 27 hooks per row; 7 – 9 + 2+ 14-18 .....	<i>C. kuntzi</i> Schmidh & Neiland 1966
5' - Proboscis armed with 32 longitudinal rows and 18 – 19 hooks per row; 8 – 9 + 4 + 6.....	<i>C. guira</i> n. sp.
6 - Proboscis armature with up to 30 longitudinal rows of hooks.....	7
6' - Proboscis armature with more than 30 longitudinal rows of hooks .....	8
7 - Proboscis armed with 20 – 22 hooks per rows; 8 + 4 + 10* .....	<i>C. albidus</i> Meyer 1932
7' - Proboscis armed with 17 hooks per rows; 7 + 3 + 7**.....	<i>C. polymorphus</i> Travassos 1925
8 - Proboscis with 32 – 35 longitudinal rows of hooks, 15 – 17 hooks per rows; 8 – 9 + 3 + 4 – 5 .....	<i>C. crotophagicola</i> Schmidh & Neiland, 1966
8' - Proboscis with 36 – 38 longitudinal rows of hooks, 17 – 18 hooks per rows; 9 + 3 + 5.....	<i>C. microcephalus</i> (Bravo Hollis 1947)

\* According to figure 5 of Schmidh & Neiland (1966).

\*\* According to figure 31 of Travassos (1926).

n. sp. in the number of longitudinal rows of hooks. (32 – 35). Schmidt and Neiland (1966) characterized this species by the presence of 15 – 17 hooks per rows, of which the first 8 – 9 in each row have well-developed roots, being the remaining hooks rootless but with strong anteriorly directed manubrium, without detailing the presence of transitional hooks. Later, Dimitrova and Gibson (2005) described encysted juveniles of this species from *Anolis lineatopus lineatopus* Grey and *A. sagrei* Duméril & Bibron from Jamaica and reported new data for the pattern of hooks per row: 8 – 9 + 3 + 4-5 (exceptionally 6). The most important morphological differences between the proboscis armature of the new species and *C. crotophagicola*, are the greater number of hooks per longitudinal row (18 versus 15 – 17) and the greater number of transitional hooks (4 versus 3). Moreover, the females differ by having a terminal papilla at posterior end, smaller proboscis, proboscis receptacle and eggs than *C. guira* n. sp. (Table 2, 3). The armature proboscis of *C. microcephalus* differs mainly from that observed in *C. guira* by having a greater number of longitudinal rows (36 – 38) and the following pattern of hooks: 9 + 3 + 5 (see Bravo Hollis, 1947; Fig. 2). The males differ by having smaller body, lemnisci and proboscis, whereas the females differ by having a smaller proboscis, proboscis receptacle and lemnisci (Table 2, 3). Finally, *C. polymorphus* differs from the new species in the pattern of hooks per row (7 + 3 + 7), by having a lesser number of longitudinal rows (30) and hooks per row (17), and by having smaller body, proboscis, proboscis receptacle, lemnisci and testes (Table 2, 3). On the other hand, the taxonomic position of this species is controverted since Golvan (1956) include it in the subgenus *Longirostris*, as *C. (Longirostris) polymorphus*; posteriorly, Golvan (1960) and Yamaguti (1963) consider it as *C. polymorphus* and Dimitrova and Gibson (2005) believe that this species better fits *Sphaerirostris* Golvan 1956 than *Centrorhynchus* due to the shape and size of the body and proboscis.

### Acknowledgements

Special thanks are due to Dr. Carlos Montoya for help and hospitality during our stay in Formosa Province. The authors, Lía Lunaschi and Fabiana Drago are members of the Comisión de Investigaciones Científicas de la Provincia de Buenos Aires (CIC) and Universidad Nacional de La Plata (UNLP), respectively. This study was funded by Comisión de Investigaciones Científicas de la provincia de Buenos Aires (CIC) (Res. N° 578/08).

### References

BOERO, J. J., BOEHRINGER I. K. (1967): El Parasitismo de nuestra fauna autóctona. *Rev. Fac. C. Vet.*, La Plata, 9(21): 147 – 160  
 BRAVO HOLLIS, M. (1947): *Gordiorhynchus microcephalus* n. sp. acantocéfalo parásito de un pájaro (*Cassidix mexicanus mexicanus*). *An. Inst. Biol. Méx.*, 18(2): 499 – 506  
 CORDERO, E. H. (1933): Sur quelques acanthocéphales de

l'Amérique méridionale. I. *Ann. Parasitol. Hum. Comp.*, 11(4): 271 – 279  
 DÍAZ UNGRÍA, C., GRACIA RODRIGO, A. (1960): Nueva aportación al conocimiento de los acantocéfalos venezolanos. *Rev. Vet. Venez.*, 8(46): 279 – 283  
 DIMITROVA, Z. M., GIBSON, D. I. (2005): Some species of *Centrorhynchus* Lühe, 1911 (Acanthocephala: Centrorhynchidae) from the collection of the Natural History Museum, London. *Syst. Parasitol.*, 62:117 – 134. DOI: 10.1007/s11230-005-5486-7  
 GOLVAN, Y. J. (1956): Le genre *Centrorhynchus* Lühe, 1911 (Acanthocephala-Polymorphidae). Révision des espèces européennes et description d'une nouvelle espèce africaine parasite de rapace diurne. *Bull. Inst. Fond. Afr. Noire*, 18(3): 732 – 785  
 GOLVAN, Y. J. (1960): Le Phylum des Acanthocephala. Troisième note. La Classe des Palaeacanthocephala (Meyer, 1931) (suite). *Ann. Parasitol. Hum. Comp.*, 35(4): 575 – 593  
 HARTWICH, G. H. (1956): Südamerikanische Acanthocephalen aus der Zoologischen Sammlung des Bayerischen Staates. *Zool. Anz.* 156(11 – 12): 299 – 308.  
 LAMAS, M. F., LUNASCHI, L. I. (2009): Ocurrencia de *Centrorhynchus* sp. (Acanthocephala: Centrorhynchidae) en *Leptophis ahaetulla marginatus* (Squamata: Colubridae). *Cuad. herpetol.*, 23(1): 45 – 49  
 MACHADO FILHO, D. A. (1940): Pesquisas helmintológicas realizadas no Estado de Mato Grosso. *Acanthocephala. Mem. Inst. Oswaldo Cruz*, 35(3): 391 – 407  
 MACHADO FILHO, D. A. (1941): Sobre alguns acantocéfalos provenientes do Estado de Mato Grosso. *Rev. Bras. Biol.*, 1(1): 57 – 61  
 MAGALHÃES PINTO, R., NORONHA, D. (1972): Contribuição ao conhecimento da fauna helmintológica do Município de Alfenas, Estado de Minas Gerais. *Mem. Inst. Oswaldo Cruz*, 70(3): 391 – 407  
 NICKOL, B. B. (1983): *Centrorhynchus kuntzi* from the USA with description of the male and redescription of *C. spinosus* (Acanthocephala: Centrorhynchidae). *J. Parasitol.*, 69(1): 221 – 225  
 RICHARDSON, D. J., NICKOL, B. B. (1995): The genus *Centrorhynchus* (Acanthocephala) in North America with description of *Centrorhynchus robustus* n. sp., redescription of *Centrorhynchus conspectus*, and a key to species. *J. Parasitol.*, 81(5): 767 – 762  
 SCHMIDT, G. D., NEILAND, K. A. (1966): Helminth fauna of Nicaragua. III. Some acantocéphala of birds, including three new species of *Centrorhynchus*. *J. Parasitol.*, 52(4): 739 – 745  
 TRAVASSOS, L. (1923): Informações sobre a fauna helminthologica de Matto Grosso (II nota). *Folha Med.*, 4: 1 – 5  
 TRAVASSOS, L. (1926): Contribuições para o conhecimento da fauna helminthologica brasileira. XX. *Mem. Inst. Oswaldo Cruz*, 19(1): 31 – 125  
 VIZCAINO, S. I. (1993): Presencia del género *Centrorhynchus* Lühe, 1911, (Acanthocephala: Centrorhynchidae) en la República Argentina. *Neotropica*, 39(101–102): 77 – 78

WHITTAKER, F. H., SCHMIDT, G. D., DIAZ, J. G. (1971): Helminth parasites of the cattle egret in Puerto Rico. *Proc. Helm. Soc. Wash.*, 38(2): 262

YAMAGUTI, S. (1963): *Systema Helminthum. Vol. 5. Acanthocephala*. Wiley Interscience, New York and London, 423 pp.

ACCEPTED NOVEMBER 11, 2009

RECEIVED JUNE 22, 2009