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Burhinotaenia colombiana n. sp. (Cestoda, Cyclophyllidea) from the Double-Striped Stone Curlew Burhinus bistriatus (Aves, Charadriiiformes) in Colombia

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ABSTRACT: *Burhinotaenia colombiana* n. sp. (Dilepididae) is described from the small intestine of the double-striped stone curlew *Burhinus bistriatus* (Wagler) occurs in Central America and northern South America, from southern Mexico to northern Colombia and northern Brazil (Howard and Moore, 1980). The only record of cestodes from this host was reported by Beddard (1913) who described the dilepidid tapeworm *Eugonodaeum oedicnemii* Beddard, 1913 from a bird at the London Zoo.

Three cestode species were found as parasites of *B. bistriatus* in Colombia. The present paper describes 1 of them, which was found to represent a new species of the genus *Burhinotaenia* Spasskii and Spasskaya, 1965. The systematic position of the other 2 species is a subject of another study that will be published separately.

**MATERIAL AND METHODS**

The present description is based on 8 entire specimens, 1 separate scolex, and a few fragments collected by R. L. and V. R. Rausch on 6 April 1977 from the small intestine of 1 female *B. bistriatus* (collection no. 42,671) captured at Carimagua, Colombia. They were fixed in hot 10% formalin, stored in 70% ethanol, stained in iron aceticarmine, dehydrated, cleared in eugenol, and mounted in Canada balsam. Two scolecites were mounted in Berlese’s fluid in order to provide detailed observations of rostellar hooks. Mature, pregravid, and gravid proglottides of 1 specimen were sectioned transversely by hand with a razor blade to facilitate study of some anatomical details.

Metric and meristic characteristics are given as the range, the mean ± 1 SD in parentheses, and the number of measurements or counts taken (n). The dimensions are in micrometers except where otherwise stated.

The type specimens of *Burhinotaenia delachauxii* (Baer, 1925) from the collection of the Natural History Museum, Geneva, nos. 6/24-25 (2 slides) and a specimen of *Burhinotaenia coronata* from *Burhinus oedicnemus* (Linnaeus), the Great Hungarian Plain, from the Parasitological Collection of the Hungarian Natural History Museum, Budapest, no. 10907 (published as *B. delachauxii* by Murai et al. [1988]), were used as comparative material.

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FIGURES 1–7. *Burhinotaenia colombiana* n. sp. 1, 2. Scoleces, scale bar 250 μm. 3–7. Rostellar hooks, scale bar = 100 μm.
Burhinotaenia colombiana n. sp. 12. Terminal genital ducts, dorsal view, scale bar = 100 μm. 13. Detail of female genital ducts, ventral view, scale bar 50 = μm; abbreviations: MG, Mehlis' gland; OV, ovary; SR, seminal receptacle; UT, uterus. 14, 15. Eggs, scale bar = 20 μm.

walled, highly elongate, claviform (with wider aporal end), often sigmoid; its measurements 375–590 × 54–85 (514 ± 44 × 66 ± 7, n = 49), vary in narrower limits in 1 strobila, e.g., 375–491 × 54–67 (n = 6), 456–532 × 63–72 (n = 9), 483–554 × 67–81 (n = 8), 528–590 × 58–67 (n = 8); situated obliquely, cross poral longitudinal osmoregulatory canals and about a third or a quarter of it lies in median field. Internal vas deferens forming 1 or a few coils in aporal part of cirrus-sac. Cirrus usually slightly evaginated, then almost conical, 16–25 (19 ± 4, n = 10) long and 12–17 (14 ± 2, n = 10) wide at base; thoroughly evaginated cirrus occurs rarely, cylindrical, 77–107 (93, n = 3) long, with diameter 12–15 (13, n = 3); armament observed neither on evaginated cirrus nor in ductus cirri.

Vitellarium compact, transversely elongate, usually reniform, situated near middle of posterior proglottis margin. Ovary (Fig. 8) occupies only central third of median field; consists of 2 separate wings connected by narrow isthmus; wings slightly lobed; aporal wing more anterior than
poral. Mehlis’ gland distinct, globular (Fig. 13). Seminal receptacle from fusiform to lemon-shaped, situated in poral half of median field, anterior to poral wing of ovary and posterior to cirrus-sac; 201–254 (233 ± 17, n = 20) long, 90–125 (97 ± 8, n = 20) wide. Vaginal lumen with diameter 3–5 (4.5 ± 0.7, n = 10), with distinct muscular walls surrounded by thick cellular sleeve; diameter of vagina (together with cellular sleeve) 25–32 (29 ± 2, n = 10).

Uterus initially appears in mature proglottides (Fig. 9) as transparently elongate sac along anterior proglottis margin, ventral to ovary; its ends do not cross the longitudinal ovisacory glandular canals. This sac expands gradually in posterior direction and its posterior margin forms numerous sacculations in postmature proglottides (Fig. 10). Gravid uterus (Fig. 11) thick-walled, occupies median field, its ends sometimes overlap longitudinal ventral ovisacory glandular canals; small portions of uterus rarely in lateral fields; walls persistent up to end of uterine development. Fully developed eggs (Figs. 14, 15) almost globular or with irregular shape, with granular outer envelop (not clearly seen in whole mounts); diameter 50–63 (56 ± 3, n = 10). Embryonic very thick, highly refractive, oval or oblate-like, with diameter 39–46 (44 ± 2, n = 10). Oncospheres round to oval or with irregular shape near to oval, thin-walled, with diameter 27–34 (31 ± 2, n = 10). Embryonic hooks 3 pairs, central pair 19–19 (18.8 ± 0.4, n = 8) long, lateral pairs 15–16 (15.9 ± 0.4, n = 8) long.

**Taxonomic summary**

*Type host:* Double-striped stone curlew, *B. bistriatus* (Wagler).

*Type locality:* Carimagua, Colombia.

*Site:* Small intestine.

*Specimens:* Holotype USNPC 85055 (1 slide), Paratypes USNPC 85056–85057 (2 specimens, 12 slides); HNHM 67008/1–3 (3 specimens, 3 slides); BBG 1995.6.6.1–4 (2 entire specimens, 1 scolex, and 2 fragments; 4 slides).

*Etymology:* The specific name, *colombiana*, refers to the country where the specimens were collected.

**Remarks**

The genus *Burhinotaenia* Spasskii and Spasskaya, 1965 was erected for 2 species described from birds of the family Burhinidae (Charadriiformes): *B. delachauxi* (Baer, 1925) (type species) and *Burhinotaenia megistacantha* (Fuhrmann, 1909). They were separated from the genus *Paricterotaenia* Fuhrmann, 1932 on the basis of their enormous rostellar hooks (about 3 times larger than the hooks of the type-species *P. porosa* (Rudolph, 1810)) and some peculiarities of genital organs, in particular the structure of the gravid uterus considered to form egg capsules (*Spas*ski and Spasskaya, 1965). According to Spasskaya and Spasskii (1978), the genus *Burhinotaenia* includes 2 valid species: (1) *Burhinotaenia delachauxi* (Baer, 1923) Spasskii and Spasskaya, 1965, synonyms *Iciterotaenia delachauxi* Baer, 1925; *Chaoanotaenia delachauxi* (Baer) Lopez-Neyra, 1935; *Paricterotaenia coronata* of Mahon (1954) and Baer (1959); and (2) *Burhinotaenia coronata* (Creplin, 1829) *Choanotaenia coronata* (Creplin, 1829) *Choanotaenia coronata* (Creplin, Fuhrmann, 1909; *Paricterotaenia coronata* (Creplin, Fuhrmann, 1932; *Choanotaenia megistacantha* Fuhrmann, 1909; *Iciterotaenia megistacantha* (Fuhrm.) Baer, 1925; *Paricterotaenia megistacantha* (Fuhrm.) Baer, 1925; *Saccuterina megistacantha* (Fuhrm.) Mathievossian, 1963; *Burhinotaenia megistacantha* (Fuhrm.) Spasskii and Spasskaya, 1965; *Choanotaenia delachauxi* var. *mesacanthesta* Lopez-Neyra, 1935; *Choanotaenia magnihumata* Burt, 1940.

Fuhrmann and Baer (1943) re-examined the original *Creplin*’s specimens and recognized *P. delachauxi* as a junior synonym of *P. coronata*. This synonymy was followed by Mahon (1954) and Baer (1959). In contrast to the conclusion of Mahon (1954), his precise drawings of rostellar hooks from the types of *P. coronata* and from her specimens from a charradriiform host from Zaire clearly demonstrated 2 different types of hook shape. On the basis of this publication, Spasskaya and Spasski (1978) considered the shape of rostellar hooks as the main distinguishing character between *B. delachauxi* and *B. coronata*: the former is characterized with ratio length of blade: length of base about 1:51; the latter has rostellar hooks with almost equal lengths of blade and base. Considering this differentiating feature, the conclusion is that the specimen of *Burhinotaenia* from *Burhinus oedicnemus* from Hun-
uterus. According to the key of Bona (1994), the uterine walls of *Burhinotaenia* are not persistent and the eggs are loose in parenchyma in the final stage of uterine development. In well stained specimens of the new species, the uterine walls are seen up to the end of the development of the organ.

The peculiar scolex structure of *Burhinotaenia* and the other 2 genera with an onderstepoortoid rostellar apparatus makes questionable their position within the family Dilepididae because most of the genera (including the type genus *Dilepis* Weiland, 1858) possess rostella with saccular sheaths. The characteristics that the absence of a saccular rostellar sheath, in combination with the saclike uterus without a paruterine organ and the avian host, resemble cestodes of the family Metadilepididae. The metadilepids are a small family (8 genera) of avian parasites morphologically similar to both Dilepididae and Paruterinidae; they can be distinguished from the former by the absence of a saccular rostellar sheath and the position of the developing uterus dorsal to the ovary, and from the latter by the absence of a paruterine organ (Kornyushin and Georgiev, 1994). In spite of the similarity of *Burhinotaenia* with the metadilepids, it cannot be placed among them because of the ventral position of its uterus to the female glands. It seems that none of the cyclophyllidean families erected up to the moment may harbor the genus *Burhinotaenia*, but the erection of a new family could be well grounded only as a part of a thorough revision of the order. Therefore, *Burhinotaenia* is tentatively retained in the Dilepididae pending further revisions of the order Cyclophyllidea. In its present composition, the family Dilepididae is a heterogenous group. This is also the opinion of Bona (1994) who believed that the 100 genera referred to this family do not form a monophyletic assemblage and suggested further studies in order to elaborate a new suprageneric arrangement of the group.

Until now, the species of the genus *Burhinotaenia* were known only from Europe, Africa, and south Asia (Spasskaya and Spasskii, 1978; Schmidt, 1986). This is the first record of cestodes of this genus in the New World.

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**LITERATURE CITED**


