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A NEW SPECIES OF *BOCCARDIA* (POLYCHAETA: SPIONIDAE)
FROM TWO FRESHWATER LAKES IN SOUTHEASTERN AUSTRALIA

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SUMMARY

Boccardia limnicola, is described and illustrated. The species, closely related to marine forms, is distinguished by an unusual branchial arrangement. Ecological notes are provided.

INTRODUCTION

Some spionid polychaetes were collected from two freshwater lakes in southeastern Australia by Brian V. Timms in the spring of 1970. The two lakes are Lake Bong Bong near Glenelg River estuary, Victoria and Lake Barracoota near Mallacoota estuary, Victoria. Polychaetes from the two lakes have been determined to be of the same species. These specialized spionids represent a species new to science and are described in the present study as *Boccardia limnicola*. Types are selected from the Lake Bong Bong collections and are deposited in the Australian Museum, Sydney (AM). The Lake Barracoota material remains with the authors.

SYSTEMATIC ACCOUNT

Boccardia limnicola, new species

MATERIAL EXAMINED: Lake Bong Bong, Victoria, November 17, 1970, in sand, 0.5 m depth HOLOTYPE AM W. 7033; 19 PARATYPES AM W. 7034. Lake Barracoota, October, 1970, in coarse sand covered by detritus, 1.0-3.0 m. depth (3).

DESCRIPTION: Largest specimens with 70 setigerous segments, length 13.0 mm, width at setiger 5 1.5 mm.

Prostomium incised on anterior margin, extending posteriorly as a caruncle to middle of setiger 2 (fig. 1). Caruncle with low elevation or hump at about anterior margin of setiger 2. Nuchal tentacle absent. Four eyes, anterior pair cup-shaped, located further apart than posterior oval pair. Palps long, extending posteriorly to setiger 10 or 12, sometimes lightly pigmented along margin of ciliated groove.

Prostomium, peristomium and first five setigers roughly subtriangular in outline. Setiger 1 with well-developed fascicles of capillary noto- and neurosetae. Setae of notopodium longer but lobe of the neuropodium better developed. Both noto- and neuropodia shifted towards the dorso-median line. In setiger 2 they show a similar but less exaggerated shift. Parapodia of setigers 2, 3, 4, 5, 6 and succeeding setigers contain fascicles of long capillary noto- and neurosetae with narrow wings along one margin. In posterior setigers, notosetae fewer in number, longer and lacking the narrow wing. Specialized posterior notosetae absent. Bidentate neuropodial hooded hooks begin on setiger 7 (fig. 2). Hooded hooks without constriction on shaft and with only a slight angle between the two teeth. There are up to six hooks per neuropodium accompanied in anterior setigers by fine capillary setae (fig. 3). The neuropodial capillary setae continue in posterior setigers but the number of hooded hooks is reduced to three.

Setiger 5 noticeably modified, about twice as large as preceding and succeeding setigers. Notosetae including closely bundled superior dorsal fascicle of short pointed setae (fig. 10) and curved row of heavy spines alternating with companion setae. Heavy spines simple and falcate with no accessory structures (figs. 6-9). Unworn companion setae tapering distally with sharp tip (fig. 5); blunt when worn (fig. 4). Neurosetae represented by small fascicle of capillary setae (fig. 11).

Branchiae present on setigers 2, 3, 4, 5, 6, 7 and continuing posteriorly for about one-half of body, smallest on setigers 2 and 5, long and finger-like in appearance on other setigers and reaching nearly to the mid-line (fig. 1).

Well-developed groove on ventral surface of posterior portion of body (fig. 12). Pygidium with four thickened irregular lobes (fig. 13).

COLOUR: The worms are light tan in colour (in alcohol) with some dusky-brown pigment dorsally on the peristomium, the anterior border of the first few setigers, and the caruncle.

REMARKS: The genus *Boccardia* has been recently reviewed by Blake and Woodwick (1971). The known species, all marine, were placed in two distinct groups. In one group the heavy spines of setiger 5 are all of one type, simple and falcate. These species also have a group of superior dorsal setae located dorsal to the heavy spines. The second group has two types of heavy spines in setiger 5 and no superior dorsal setae. *Boccardia limnicola* clearly belongs to the first group. It differs from its four closest relatives by several taxonomic characteristics (Table 1).

Boccardia limnicola is unique within the genus in having branchiae on setiger 5. The only other spionid species of the *Polydora-Boccardia* complex to have branchiae on setiger 5 is *Tripolydora spinosa* Woodwick (1964).

ECOLOGY: Lake Bong Bong has a maximum salinity of 0.36‰ and Lake Barracoota has a 0.30‰. Average lake and river salinities are about 0.15‰ and the ocean about 35.0‰ (Pearse and Gunter, 1957). The Australian lakes have maximum depths of 6.5 and 8.0 m, respectively. Both lakes are indirectly connected to estuaries. Lake Bong Bong is connected by a long (six mile) swamp to the Glenelg River estuary which opens to the sea not far from the Victoria-South Australia border. Lake Barracoota is now cut off from the ocean by sand dunes and swamps but apparently was once part of the Mallacoota estuary near the Victoria-New South Wales border.

Associated organisms in Lake Barracoota include two species of isopod, one athurid and one sphaeromid.

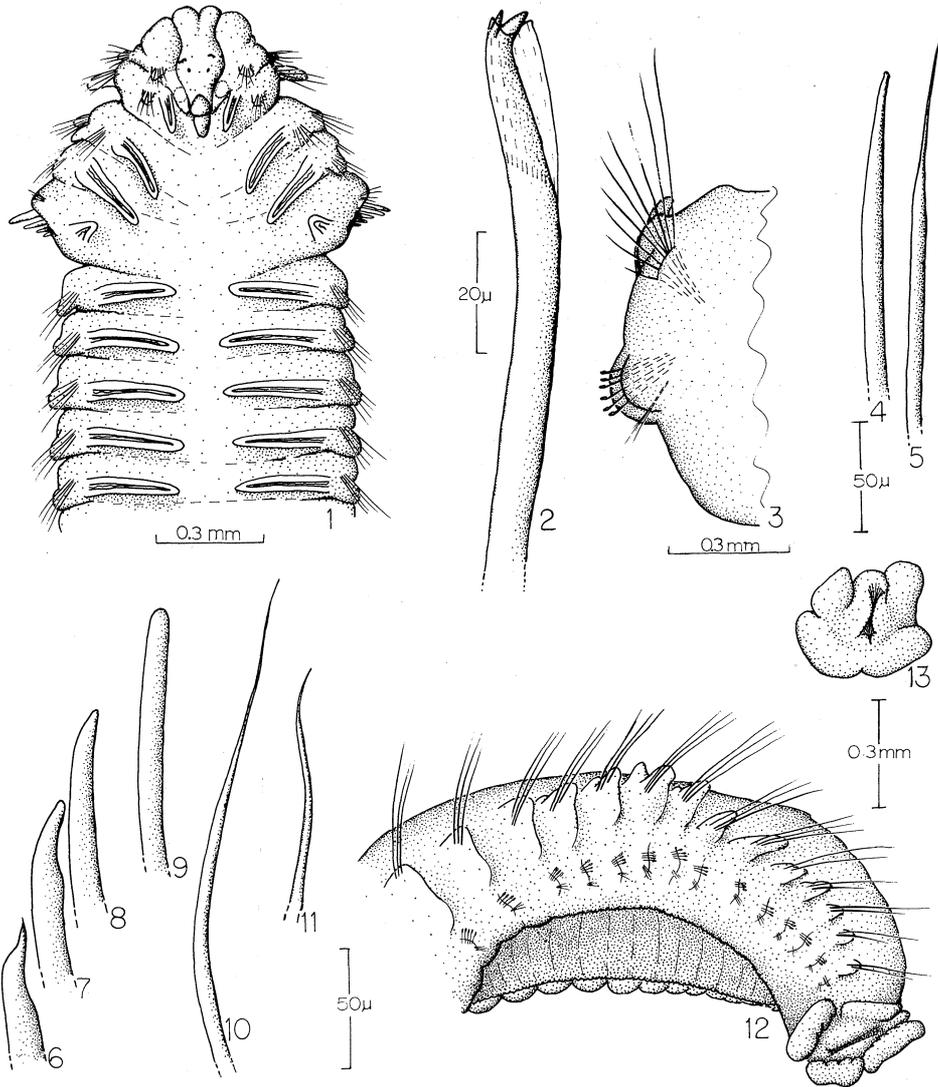
Although several spionids are known from estuaries or other brackish water habitats (Wesenberg-Lund, 1958), we know of no previous record of a freshwater spionid.

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Table 1. Some taxonomic characteristics of five related species of *Boccardia*.

Species of <i>Boccardia</i>	Anterior branchiae on setigers	Notosetae on setiger 1	Prostomial nuchal tentacle	Prostomial caruncle terminates on	Posterior notopodial spines	Reference
<i>B. ligerica</i> Ferroniere, 1898	2, 3, -, -, -, 7	absent	absent	end of Setiger 2	present (recurved)	Blake & Woodward, 1971
<i>B. sp. (redeki</i> sensu Okuda, 1937)	2, 3, -, -, 6, 7	absent	present	end of Setiger 3	?	Okuda, 1937
<i>B. hamata</i> (Webster, 1879)	2, 3, -, -, 6, 7	absent	absent	end of Setiger 3	present (recurved)	Blake, 1966
<i>B. truncata</i> Hartman, 1936	2, 3, 4, -, 6, 7	absent	absent	end of Setiger 2	absent	Hartman, 1936
<i>B. limnicola</i> n. sp.	2, 3, 4, 5, 6, 7	present	absent	middle of Setiger 2	absent	this paper



Figs. 1-13.—*Boccardia limnicola*: 1, anterior end, dorsal view, palps omitted; 2, hooded hook; 3, parapodium from setiger 10, anterior view; 4, worn companion seta from setiger 5; 5, unworn companion seta from setiger 5; 6-9, heavy spines of setiger 5 showing series of wear from unworn (6) through worn (9); 10, notoseta from superior dorsal fascicle of setiger 5; 11, neuroseta from setiger 5; 12, posterior end, lateral view; 13, pygidium.

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