

On the presence of *Chaetopleura hennahi* (Gray, 1828) (Polyplacophora: Chaetopleuridae) in Chile

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Abstract: *Chaetopleura hennahi* (Gray, 1828) is a chiton species characterized by its low profile, a comparatively large and wide body with reddish brown valves, and the presence of short hairs only in the rather narrow mantle. This rare species has been previously cited from Peru and Chile, with a dubious record near Ringdove Inlet in Canal Smyth, southern Chile; however, no field records have confirmed its presence in Chile. Here we present the first confirmed record for *C. hennahi* in the country based on two specimens found attached to rocks collected from commercial fisheries off Caldera, northern Chile. Considering this record, a continuous presence of *Chaetopleura hennahi* from Isla Chinchá Norte, Peru, to Caldera, northern Chile, is expected.

Key words: Chitons, polyplacophorans, southeastern Pacific, subtidal, Peruvian biogeographical province

Most of the chiton species from northern Chile were described in the 19th century, chiefly in some classical works reviewing the entire region of the southeastern Pacific (e.g., Frembly, 1827; Rochebrune and Mabilie, 1885; Rochebrune, 1889; Pilsbry, 1892–1894; Plate, 1901, 1902; Thiele, 1906, 1911; Melvill and Standen, 1912). However, most of the subsequent works dealing with polyplacophorans have neglected the coast of northern Chile, and only a few works have included chitons from the area (e.g., Leloup, 1956; Kaas and Van Belle, 1985a, 1985b, 1987, 1990, 1994; Aguilera 2005a, 2005b; Aguilera and Navarrete, 2007; Camus et al., 2012; Sirenko, 2014, 2015). Even when considering the narrow intertidal zones of most of the coast of northern Chile, the diversity of species in the area is similar to that found in the central and southern areas of the country (Osorio and Reid, 2004; Aldea and Valdovinos, 2005; Osorio et al., 2005; Araya and Araya, 2015).

Of the 29 extant *Chaetopleura* species, only 8 are found in the southeastern Pacific, from Peru to southern Chile. Most of these conspicuously sculptured, often hairy species live in shallow water, with some species (e.g., *Chaetopleura peruviana* (Lamarck, 1819)) having high local abundances on rocky beaches. In this report, as part of a series of works reviewing the molluscan species from northern Chile, we present the first confirmed records of *Chaetopleura hennahi* in Chile, based on two specimens collected from

commercial fisheries, with commentaries on the records of this species in the southeastern Pacific.

Systematics

Phylum Mollusca Linnaeus, 1758

Class Polyplacophora Gray, 1821

Subclass Neoloricata Bergenhayn, 1955

Order Chitonida Thiele, 1909

Superfamily Chitonoidea Rafinesque, 1815

Family Chaetopleuridae Plate 1899

Genus *Chaetopleura* Shuttleworth, 1853

Type species *Chiton peruvianus* Lamarck, 1819, by subsequent designation.

Chaetopleura hennahi (Gray, 1828) (Figures 1A–1C)

Chiton hennahi Gray, 1828 6. Sowerby I, 1832: pl. 38, fig. 1. Gray, 1839: 148, pl. XL, fig. 1.

Chiton jaspideus Gould, 1846: 143. Smith, 1977: 244. Ferreira, 1983: 210.

Chaetopleura hennahi Pilsbry, 1892: 29, pl. 12, figs. 47, 48, 49; pl. 17, fig. 39. Thiele, 1908: 17. Dall, 1909: 180, 244. Leloup, 1956: 33, figs. 14, 15, 16. Ferreira, 1983: 220. Lyons, 1985: 42. Valdovinos, 1999: 122. Ramirez et al., 2003: 257. Kaas and Van Belle, 1987: 64, fig. 28, map 11. Álamo and Valdivieso, 1997: 4. Ramírez et al., 2003: 257.

Material examined: Two specimens, attached to rocks, collected from commercial fisheries off Caldera (27°01'S, 70°48'W; 25 m depth), Región de Atacama, northern Chile. **Measurements:** 33 mm length, 24 mm width, 6 mm height

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(Specimen 1, reference collection of the first author); 19 mm length, 15 mm width, 4 mm height (Specimen 2, MPCCL 010316).

Description (after Kaas, 1987): Animal of relatively large size (largest examined specimen 33 mm long, without girdle; Figure 1A), oval, depressed (dorsal elevation 0.26–0.30), carinated, side slopes straight to very slightly convex, valves not beaked. Color of tegmentum generally wine-red to reddish brown, often with longitudinal streaks of darker and lighter tones, especially on the jugal areas; some specimens are white to greenish white, marked with brown. Girdle clothed with spicules and corneous bristles. Head valve semicircular, posterior margin widely V-shaped, notched in the middle. Intermediate valves broadly rectangular, jugal part of front margin somewhat forwardly produced, side margins rounded, hind margin mostly straight, apices inconspicuous in valves II–IV, slightly perceptible in valves V–VII, lateral areas little elevated. Tail valve less than semicircular, almost 3 times as wide as long, and definitely as wide as the head valve, anterior margin somewhat convex, mucro in front of the middle, slightly prominent, postmucronal slope slightly concave. Tegmentum glossy, sculptured with numerous, closely beaded, fine threads, longitudinally directed on the central areas, the pustules more or less obsolete, radially on the end valves and the lateral areas of the intermediate valves, where the pustules are somewhat larger and more clearly visible, growth lines weakly indicated in the end valves, obsolete in the intermediate valves, teeth sharp, prominently grooved on the outside, 2–4 lobes, though not forming any secondary slits, eaves narrow, not spongy.

Girdle moderately wide, brownish, or with alternating olivaceous and light brown bands, dorsally covered with randomly dispersed, pointed spicules; $36 \times 14 \mu\text{m}$, with about 5 longitudinal grooves in the distal half, and numerous yellowish, hollow bristles of different forms, mostly in pairs, up to 1 mm long, bearing a terminal, calcareous spicule. Ventral scales elongate oval, obtusely pointed, weakly longitudinally striated, $60 \times 24 \mu\text{m}$ on mid-girdle.

Distribution: *Chaetopleura hennahi* has been recorded from Ancón (11°47'S), Callao and Pucusana, to Isla Chíncha Norte (13°38'S, 76°23'W), in Peru (Ferreira, 1983; Álamo and Valdivieso, 1997); it has also been cited, unconfirmed, from Arica (18°S), in northern Chile (Kaas and Van Belle, 1987). A single record near Ringdove Inlet in Smyth Canal, c. 52°S, at a depth of 30 m (Thiele, 1908), has not been corroborated; considering the lack of subsequent reports of this species in further and more recent works made in southern Chile or similar areas in southern South America (Reid and Osorio, 2000; Osorio and Reid, 2004; Aldea and Rosenfeld, 2011), this record is considered to be incorrect or dubious at least. Valdovinos (1999) presented a rather extensive distribution for this species from 15°S to 55°S in Chile; however, this was partly based on the unconfirmed records given by Thiele (1908) and by Kaas and Van Belle (1987). The present material examined constitutes the southernmost confirmed record of this species.

Remarks: The examined specimens concur with all of the characteristics given for the species in all previous descriptions, the only exception being slightly broader

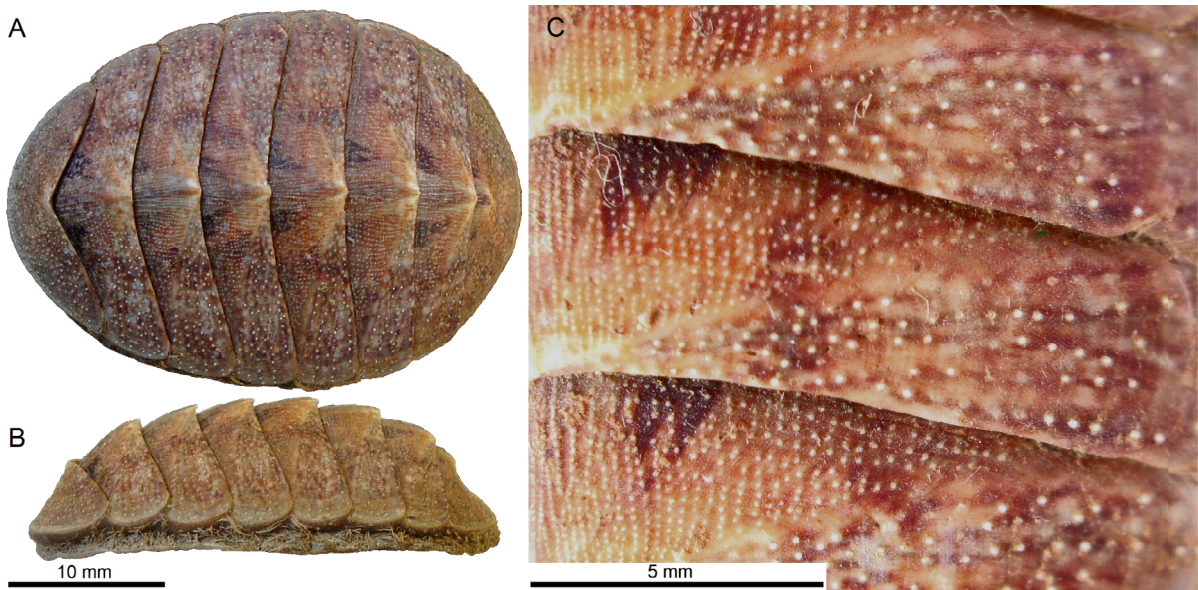


Figure 1. General view of *Chaetopleura hennahi* (Gray, 1828) from Caldera, northern Chile: A) dorsal view; B) side view; C) detail of valves showing the characteristic sculpture.

shells with rather narrow girdles. Among the chiton species found in the area, *Chaetopleura hennahi* can only be misidentified as *Chaetopleura benaventei*, from which it differs in having a wider profile, with more granulose valves and with finer rows of pustules; the tail valve of *C. hennahi* is also narrower and has more rows of fine pustules than that of *C. benaventei*. *Chaetopleura peruviana*, a common species in northern Chile, is easily distinguished from *C. hennahi* in presenting black or reddish hairs in between the valves, which are absent in the latter species. *Chaetopleura hennahi* seems to have a subtidal habitat, living in rocky areas, which is possibly the reason why it was not cited in a recent review of chitons in the area (Araya and Araya, 2015).

Considering the present record—and further unpublished records of *Ischnochiton pusio* (Sowerby I, 1832) and *Tonicia swainsoni* (Sowerby in Broderip and Sowerby, 1832) from the same areas—the polyplacophoran

diversity of northern and southern Chile may be similarly rich in species, even when considering the vast differences in the geographic and oceanographic conditions along the long Chilean coast (Osorio and Reid, 2004; Aldea and Valdovinos, 2005; Schwabe et al., 2006). Further field studies such as those by Reiswig and Araya (2014), Sirenko (2014, 2015), Araya and Aliaga (2015), Araya et al. (2016), Araya (2016), and Araya and Valdés (2016), which have revealed several new records or even new species in northern Chile, are thus essential to document this fauna.

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