



# A New Record of the Rare Crab *Homolodromia robertsi* Garth, 1973 (Crustacea; Decapoda; Homolodromiidae), from Cocos Island, Costa Rica <sup>†</sup>

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**Abstract:** In the American Museum of Natural History, New York, there is an old specimen labelled as “*Holodromia harrisonwilliamsi* Boone, MS name” that was collected from Cocos Island in 1925. This name has never been published. An examination of the specimen shows that it is a juvenile specimen of *Homolodromia robertsi* Garth, 1973, a species described from Peru, which has since been reported from Chile and off the coast of Ecuador. This paper reports on the specimen *Homolodromia robertsi* Garth found in Costa Rica for the first time, a discovery that extends the known range of this species northwards.

**Keywords:** *Arcturus* expedition; eastern Pacific; homolodromiid; manuscript name; range extension



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## 1. Introduction

In the early 1990s, the first author of this paper was researching type specimens from the collection of the American Museum of Natural History (AMNH) to prepare a series of type catalogues [1–5]; known as the decapod type catalogue; however, that research was never completed. During this process he discovered a jar with “*Holodromia harrisonwilliamsi* Boone, MS name” written on the affixed tag. It was evident that “*Holodromia*” was a misspelling of *Homolodromia* A. Milne Edwards, 1880 [6] (Homolodromiidae), and the species was never described under that name by Lee Boone (b. ca. 1895–d. 1954). The purpose of the present report is to formally identify the single specimen therein, after a delay of some 30 years since having located the jar.

## 2. Materials and Methods

The specimen was borrowed from the AMNH and photographed using a Canon EOS 5D Mark III with a Sigma (Kanagawa, Japan) 105 mm 1:2.8 DG Macro lens. The resulting pictures were aligned and stacked with the focus stacking software Zerene Stacker v. 1.04 (12 images from bottom to top of the specimen), and the final figure was assembled in Adobe Photoshop<sup>TM</sup> v.24.4.0. The map was prepared using SimpleMappr [7].

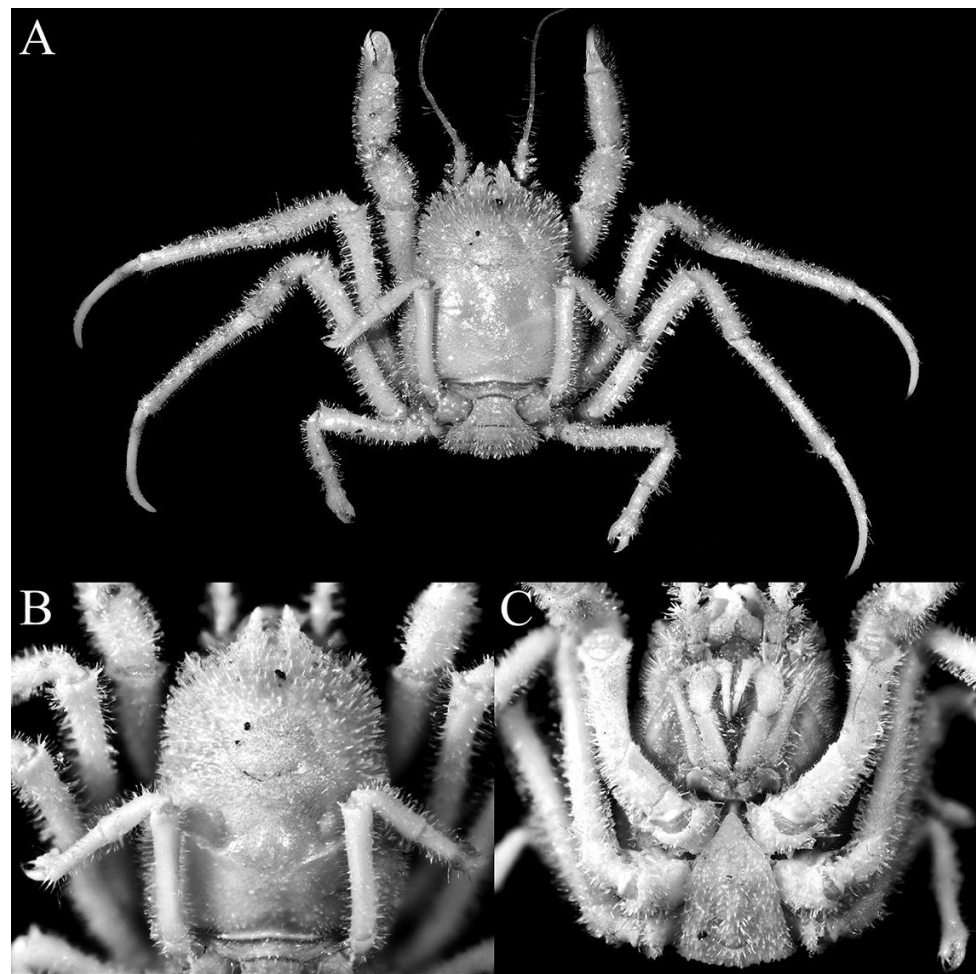
## 3. Systematic Account

Family *Homolodromiidae* Alcock, 1900 [8]

Genus *Homolodromia* A. Milne-Edwards, 1880 [6,9]

*Homolodromia robertsi* Garth, 1973 [10]

Figure 1



**Figure 1.** *Homolodromia robertsi* Garth, 1973. (A) Juvenile female, 18.6 mm CL  $\times$  14.5 mm CW (AMNH 12404), dorsal view. (B) Close-up of carapace. (C) Close-up of buccal cavity and pleon.

*Homolodromia robertsi* Garth, 1973: 1–3, figure 1 (2 type females, 03°48.5' S, 81°18.4' W–07°59' S, 80°22' W, Peru, 800 m) [10].—Báez and Martin, 1989: 492–499, figures 1–3 (2 males, 3 females, 28°26' S, 71°23' W–32°06' S, 71°46' W, Chile, 560–850 m) [11].—Wicksten, 1989: 303 (list) [12].—Martin, 1992: 146, 149, 150 (mention) [13].—Guinot, 1995: 195, figures 6A,B and 8a–d (1 paratype female, 03°48.5' S, 81°18.4' W–07°59' S, 80°22' W, Peru, 800 m; 1 female, Chile) [14].—Kameya et al., 1998: 97 (list) [15].—Ganoza et al., 2014: 25 (mention of holotype) [16].—Tavares and Lemaitre, 2014: 504, 505 (list) [17].—Retamal et al., 2020: 595 (list) [18].—Ng et al., 2008: 39 (list) [19].—Méndez-Abarca and Pepe-Victoriano, 2021: 60, 62, figure 39M (list) [20].—Cornejo Antepara, 2021: 6, 7, 9 (01°42' S–03°02' S, ca. 81°15' W [inferred], off the coast of Ecuador, 600–1100 m) [21].

#### Material Examined

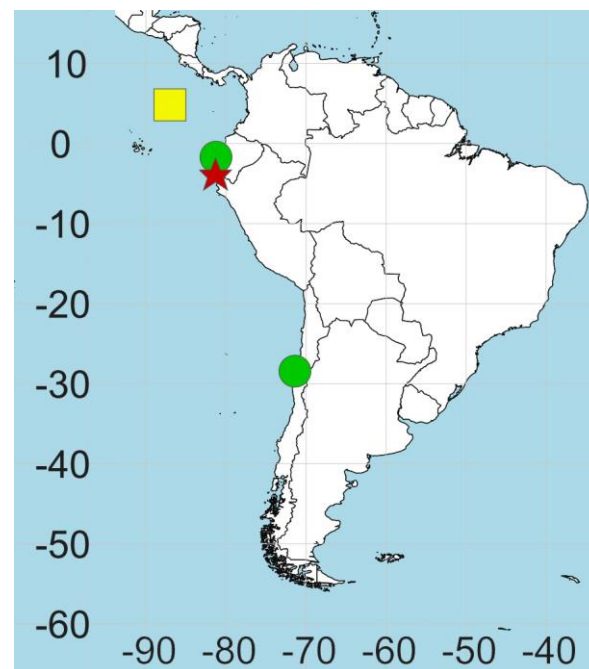
Juvenile female (18.6 mm CL  $\times$  14.5 mm CW), station 74, OT-4, 60 miles (97 km) south of Cocos Island, Costa Rica, 04°50' N, 87°00' W, 514–900 fms (940–1646 m), *Arcturus* Expedition, 25 May 1925 (AMNH 12404).

#### 4. Discussion

Lee Boone (also known as Pearl Lee Boone) was an early 20th century taxonomist, known for her often inconsistent ability to identify invertebrates [22,23], including numerous crustaceans. Of the 97 crustacean taxa she described, including names from the species to family level, only about half (50) are not placed in the synonymy of older names [9].

However, in the case of the present specimen, she was correct in identifying that it belongs to *Homolodromia* (the misspelling on the jar tag is apparently not hers); had she correctly described name of the species, she would have preceded Garth by almost 50 years.

New material of *Homolodromia robertsi* has only been reported four times in the literature: the holotype and one paratype female (found at 800 m depth) from Peru [10], two males and three females (found at 560–850 m depth) from Chile [11], one ovigerous female from Chile [14], and indeterminate number of specimens from the coast of Ecuador [21] (Figure 2). The present specimen extends the range northward by approximately 800 km from the type locality and is also a new record for Costa Rica. Note that the authors in [16] only stated that the holotype was collected in 1971 and did not provide a new record of the species.



**Figure 2.** Map of localities where *Homolodromia robertsi* has been collected. Red star = type locality; yellow square = new record; green circles = other records. The coordinates of the record reported by [14] from Chile are unknown; the longitude of the green circle (Ecuador) is inferred from the depth (600–1100 m) [21].

The present specimen differs from previous described material in only two characters. The carapace is more longitudinally ovoid (Figure 1A,B) rather than being pyriform with a distinctly wider posterior; cf. figure 1A [10]; figure 1 [11]. Additionally, the dactyli of the first and second walking legs also appear to be proportionally shorter than those of the holotype female (figure 1A [10]) and material previously reported (figure 1 [11]). The present specimen, however, is much smaller (18.5 mm CL × 14.5 mm CW) than both the holotype (42.5 mm CL × 38 mm CW) and the females previously reported [9; 26.7–43.2 mm CL × 22.2–37.8 mm CW]. The differences in carapace and dactyli proportions observed are likely correlated with overall body size and growth. The size of the paratype cited in [10] is not known but the specimen was ovigerous and therefore mature.

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