



## Redescription of *Eudistoma magalhaensis* (Michaelsen, 1907) (Ascidiacea) from Guaitecas Islands, Chile

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The type species of the genus *Paessleria* Michaelsen 1907, known previously only from the original description is newly recorded from the Guaitecas Islands. All features of this species are characteristic of the genus *Eudistoma* confirming that *Paessleria* and *Eudistoma* are synonyms.

The shallow-water ascidian fauna of Chile is relatively well known, although the species we describe in the present paper, *Eudistoma magalhaensis*, is recorded for the first time since it was described originally. The genus *Eudistoma* Caullery, 1909, comprising 110 species, often is encountered in temperate and tropical waters. However, species in this genus are difficult to identify, and many have been wrongly assigned in the past. Zooids have a uniform structure and are muscular and often strongly contracted in preserved material, adding uncertainty to the taxonomic position of several, sometimes common, species. For example, several authors, including Van Name (1945) assigned widely distributed northern *E. vitreum* (Sars, 1851) to *Polycitor* because they counted four rows of stigmata in this species, although only three actually are present. Redescribed here, *E. magalhaensis* also was assigned to *Polycitor* by Van Name (1945) because he believed that it may have four rows of stigmata. Stomach folds, mentioned in the original description of this species also added uncertainty to its generic assignment. As the species is the type species of the genus *Paessleria* Michaelsen, 1907 its accurate definition is important.

### *Eudistoma magalhaensis* (Michaelsen, 1907)

(Figures 1, 2)

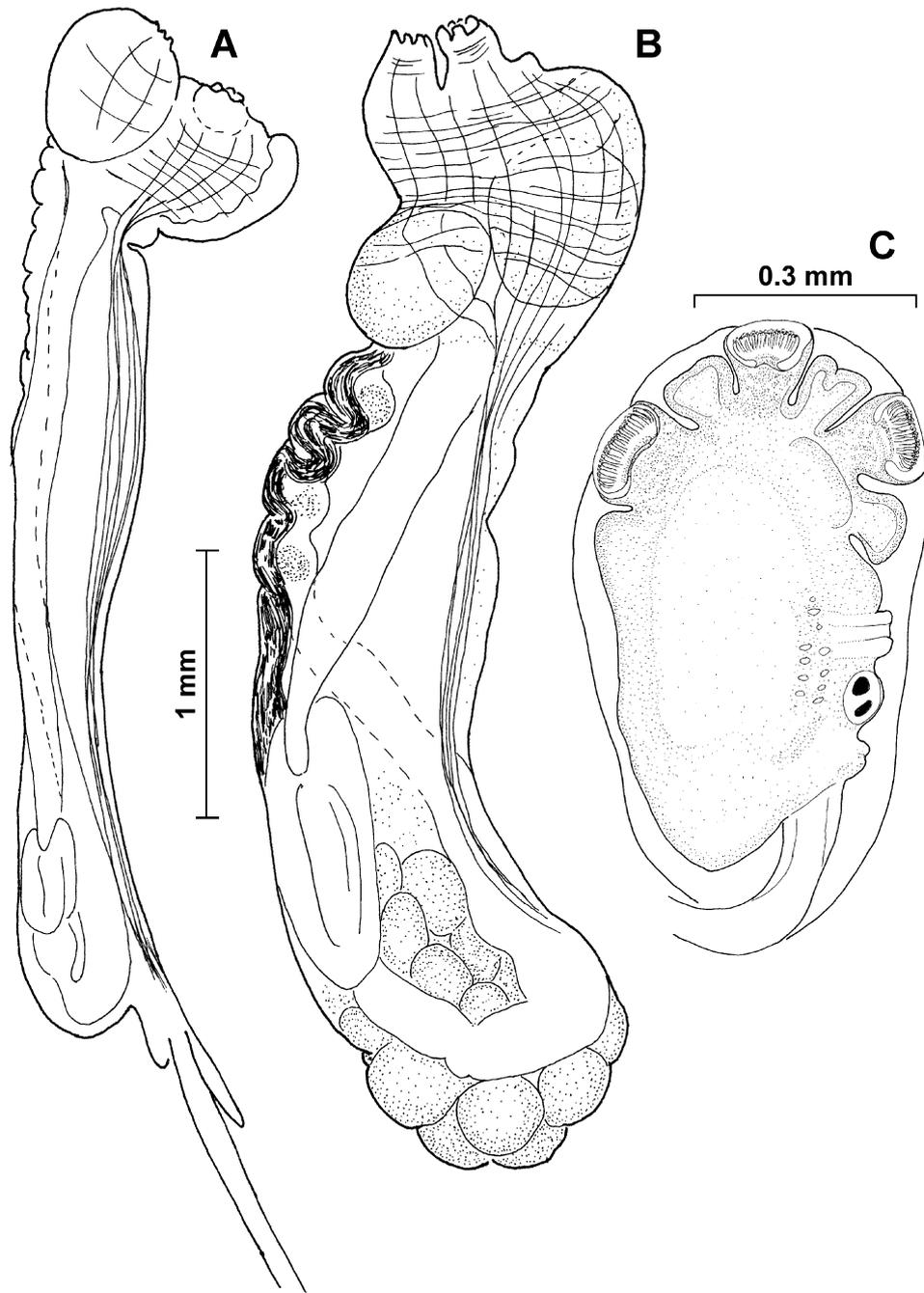
*Paessleria magalhaensis* Michaelsen, 1907: 69.

*Polycitor magalhaensis*: Van Name, 1945: 132 and synonymy (only where it refers to the type material).

*Sigillina* (*Paessleria*) *magalhaensis*: Kott, 1969: 39.

**Material examined:** Chile, Guaitecas Islands (KBPIG 1316, 1317). Melinka, island in front of Falso Faro (KBPIG 1313, 1315); old landing stage, in front of the town (KBPIG 1314). Several specimens in each lot. The specimens were collected in 2004 and 2005 by scuba diving at 5–8 m depth by D. Schories. They are deposited in the Kamchatka Branch of the Pacific Institute of Geography (KBPIG).

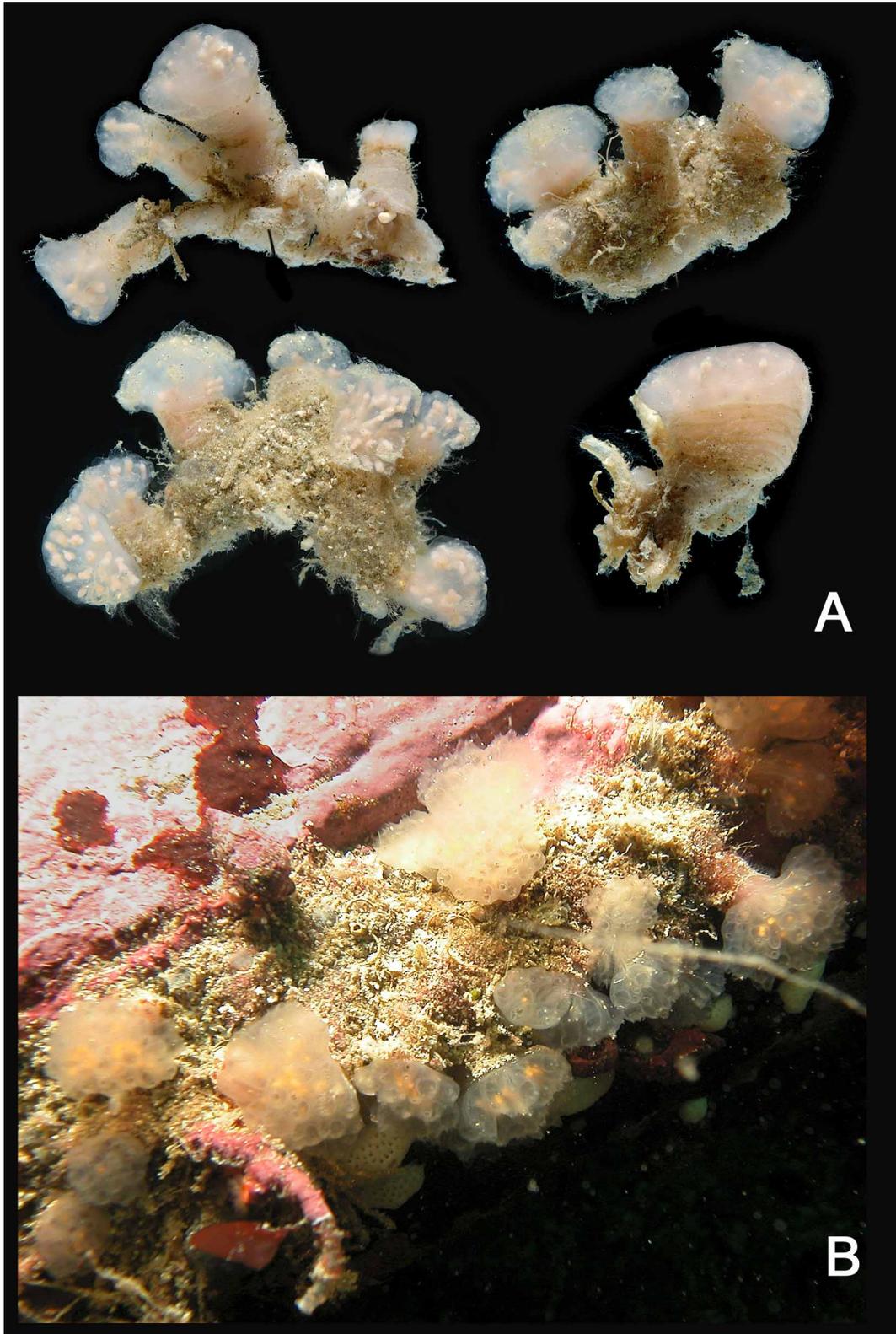
**Description.** The colonies consist of one to several small (about 1 cm diameter), rounded, semitransparent heads on short cylindrical stalks (0.5–1.5 cm long, 0.5 cm diameter) arising from common basal test. The stalked heads are unevenly distributed on the basal test (figure 2B) and are never crowded. The heads are clear and soft, and are clearly demarcated from the supporting stalks by their greater diameter and the softer consistency of the test. This demarcation is especially evident between heads and stalks in living specimens with inflated heads, but can also be seen in preserved specimens. The stalks and basal tunic are firm and opaque and usually are covered by fine sediment, sparse sand grains and epibionts. Inner layers of the test may contain scattered minute sand grains but generally are free from embedded matter. The largest colony photographed *in situ* is about 10 cm in maximum extent, although preserved specimens are fragments less than 2–3 cm long (figure 2A). Both living and preserved specimens are almost colourless, with a slight yellowish tint. Pigment granules were not detected in test, zooids or larvae. In preserved material contracted zooids are mostly located in the heads of the colony, and only occasionally abdomina extend down the stalk. Zooids are parallel to each other and open on the upper surface of the heads. Occasionally atrial siphons of two or three zooids open close to each other forming a rudimentary system, but generally these systems were not detected, and may not always be present.



**FIGURE 1.** *Eudistoma magalhaensis*, A — zoid without gonads; B — zoid with mature male gonads; C — larva.

Preserved zooids are strongly contracted, 3.5–5.5 mm long. Atrial and branchial siphons are prominent, muscular, with six-lobed margins around each aperture. Longitudinal muscles are in 10–12 separate, well spaced narrow bands on each side of the thorax. These converge to form a wide band along each side of the mid-ventral line of the abdomen to the posterior end of the zooid. Numerous transverse thoracic muscles are much thinner than the longitudinal muscles and are discernible only after staining. Branchial tentacles are relatively numerous (about 20) and are arranged in three distinct circles. Stigmata are in three rows, the anterior row is straight at its dorsal end (not curved anteriorly as in some other species). About 12–14 stigmata are in each half row, but these were counted only in a few less contracted zooids. The esophagus is long, as is characteristic of *Eudistoma*. A small slightly asymmetrical stomach is at the posterior end of the abdomen, its wall generally is smooth or it has shallow, irregular, longitudinal creases that appear to be a result of contraction or collapse. An oval posterior stomach and mid-intestine were observed in some zooids. Neither gastric vesicle nor pyloric gland were detected. Large oval male follicles fill the posterior end of the abdomen, about 15 being counted in one zooid. Some zooids have one or two large embryos or larvae in the atrial cavity. Larvae are large, the

trunk being 0.75–0.85 mm long. Three adhesive organs are in the antero-median line. They have thick short stalks and wide platforms of numerous closely packed columnar cells in shallow epidermal cups. Adhesive organs alternate with three thick-walled median ampullae. Also one shallow lateral ampulla sometimes is discernible.



**FIGURE 2.** *Eudistoma magalhaensis*, A – formalin-preserved colonies; B – living specimen.

**Remarks.** This is the first record of this species since it was described originally 100 years ago. Originally it was described from the Strait of Magellan and the present record from Guaitecas Islands is several degrees to the north of the type locality. However, many common species known from the Strait of Magellan are often present in material collected by SCUBA diving in the Guaitecas Islands and even further to the north e.g. *Aplidium variable* (Herdman, 1886), *A. fuegiense* Cunningham, 1871, *Sycozoa sigillinoides* (Lesson, 1830), *Trididemnum auriculatum* Michaelsen, 1919, *Didemnum studeri* Hartmeyer, 1911 and *Paramolgula gregaria* (Lesson, 1830). *Eudistoma magalhaensis* is relatively rare, only few colonies having been found among the numerous ascidians collected in this region.

The present material corresponds well with the original description. Michaelsen's (1907) figures 1 and 2 (taf.1) represent a single cormidium, not a whole colony. Longitudinal stomach folds described and figured by Michaelsen (1907, taf.3, fig. 12) are seen to be artefacts of fixation, the stomach in this species being smooth, as is characteristic of *Eudistoma*.

Originally described as a type species of the genus *Paessleria* Michaelsen 1907, this species then was variously assigned to *Polycitor*, *Sigillina* (see synonymy) or *Eudistoma* (see Kott, 1990: 192). The present material confirms it as congeneric with species of *Eudistoma* and that *Paessleria* and *Eudistoma* are synonyms. A proposal that precedence be given over *Paessleria* Michaelsen, 1907 to *Eudistoma* Caullery, 1909 was accepted by the International Commission for Zoological Nomenclature which ruled that the name *Eudistoma* Caullery, 1909 be given precedence over *Paessleria* Michaelsen, 1907 whenever the two names are considered to be synonyms (Tubbs 1997).

## References

- Caullery, M. (1909) Recherches sur la famille des Distomidae. *Bulletin Scientifique de la France et de la Belgique*, 42, 1–59.
- Cunningham, R.O. (1871) Notes on the reptiles, amphibia, fishes, Mollusca and Crustacea obtained during the voyage of H.M.S. Nassau in the years 1866–1869. *Transactions of the Linnean Society London*, 27, 465–502.
- Hartmeyer, R. (1911) Die Ascidien der Deutschen Südpolar-Expedition, 1901–1903. *Deutsche Südpolar-Expedition (1905–31)*, 12(4), 407–606.
- Herdman, W.A. (1886) Report on the Tunicata collected during the voyage of H.M.S. 'Challenger' during the years 1873–76. Pt. II, Ascidiae compositae. *Zoology*, 14(38), 1–425.
- Kott, P. (1969) Antarctic Ascidiacea. A monographic account of the known species based on specimens collected under U.S. Government auspices 1947 to 1963. *Antarctic Research Series*, 13, 1–239.
- Kott, P. (1990) The Australian Ascidiacea, part 2, Aplousobranchia (1). *Memoirs of the Queensland Museum*, 29(1), 1–226.
- Kott, P. (1995) *Eudistoma* Caullery, 1909 (Tunicata): proposed precedence over *Paessleria*. *Bulletin of Zoological Nomenclature*, 52(3), 254–256.
- Lesson, R.P. (1830) Zoologie. In *Voyage autour du monde sur 'La Coquille' pendant 1882–1825*. vol. 2(1). Paris, pp. 256–279, 433–440.
- Michaelsen, W. (1907) Tunicaten. *Ergebnisse der Hamburger Magalhaensischen Sammelreise, 1892–1893*, 8(5), 1–84.
- Michaelsen, W. (1919) Zur kenntnis der Didemnidae. *Abhandlungen aus dem Gebiete der Naturwissenschaftlichen, Hamburg*, 21(1), 1–42.
- Sars, M. (1851) Beretning om en i Sommeren 1849, foretagen zoologiske Reise i Lofoten og Finmarken. *Nytt Magazin for Naturvidenskaberne*, 6, 121–211.
- Tubbs, P.K. (editor) (1997) *Eudistoma* Caullery, 1909 (Tunicata): given precedence over *Paessleria* Michaelsen, 1907. Opinion 1865. *Bulletin of Zoological Nomenclature*, 54(1), 70–71.
- Van Name, W.G. (1945) The North and South American ascidians. *Bulletin of the American Museum of Natural History*, 84, 1–476.