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Aleutian Ancorinidae (Porifera, Astrophorida): Description of three new species from the genera *Stelletta* and *Ancorina*

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Abstract

Two new species of the genus *Stelletta* and one new species of *Ancorina* are described from the Aleutian Islands of Alaska and compared to congeners of the region. This is the first record of the genus *Ancorina* in the North Pacific Ocean. *Stelletta ovalae* Tanita 1965 is also reported for the first time from the Bering Sea and Alaska.

Key words: new demosponges, Aleutian Islands, Alaska, North Pacific, Bering Sea.

Introduction

Sponges collected during the summer of 2012 in the Aleutian Islands of Alaska included five species assigned to the Order Astrophorida. Four of the five species were previously undescribed and included two species assigned to the genus *Stelletta*—a large genus containing 152 species worldwide (Van Soest *et al.*, 2013). *Stelletta* are generally underrepresented in the North Pacific Ocean, with species known from the Sea of Japan, the Kuril Islands, off the California Coast of North America, and two species (*S. validissima* Thiele, 1898 and *S. clarella* de Laubenfels, 1930) previously reported from Alaska (Austin *et al.*, 2013). With this publication we add two new species, *Stelletta makushina* and *Stelletta anthastra*, and also report *Stelletta ovalae* Tanita, 1965 for the first time from Alaska. We compared spicule types and measurements of the new *Stelletta* to all others previously reported from the North Pacific Ocean, Bering Sea, and the North Atlantic Ocean, and confirm that they are novel species (Table 1).

The 2012 collections also included two large specimens described as *Geodia starki* Lehnert *et al.*, 2013. A third specimen of similar appearance and dimensions, collected on the same trawl haul, was initially regarded as *Geodia starki* but upon closer examination turned out to be another undescribed species, *Ancorina buldira*, described in this paper. *Ancorina* is a relatively small genus with only 14 species described worldwide (Van Soest *et al.*, 2013). They are principally known from Australia and New Zealand, both coasts of Africa, the Mediterranean and Adriatic Seas, and the Northeast Atlantic Ocean. This is the first record of the genus from the North Pacific Ocean.

The number of species in the family Ancorinidae known from Alaska waters grows from three (*Penares cortius* de Laubenfels, 1930, *Stelletta validissima* Thiele, 1898, and *Stelletta clarella* de Laubenfels, 1930) to six with the material presented here. These collections continue to support our contention that the sponge fauna of Alaska, and the Aleutian Island Archipelago in particular, is strikingly diverse and largely unknown.

in ethanol, collected by Jim Stark with a research survey bottom trawl from the FV *Ocean Explorer*; 26 July 2012, 234 m depth, 34 km WSW of Buldir Island, western Aleutian Islands, North Pacific Ocean (52°17.16" N, 175°21.48" E). Probably attached to a mass of sand and pebbles. Bottom water temperature = 3.7 °C.

Description. Large, massive, light brown coloured sponge (in life), dimensions 23 cm x 18 cm x 6.5 cm (Figs. 4A–B). Hard, only slightly elastic consistency. Habitus similar to *Geodia starki* Lehnert *et al.*, 2013. In sections perpendicular to the surface, there is a whitish collagenous cortex, 500–800 µm in thickness and up to 15 mm below the surface (Fig. 4B). Polyspicular tracts of megascleres radiate through the cortex, 800–1100 µm in diameter in the cortex and fanning out to form a dense spicule brush (Fig. 4B). Right below the cortex and between the polyspicular tracts oval-shaped canals are visible, 400 x 800 µm in diameter at intervals of approximately 1 mm. A reddish brown to dark brown choanosome, where the arrangement of spicule tracts becomes more irregular, is visible below the oval canals (Fig. 4B). Spicules are long, abundant plagiotriaenes (Fig. 4C), straight rhabds up to 8000 x 180 µm, more rare protriaenes (Fig. 4F), anatriaenes (Fig. 4D), relatively small but thick dichotriaenes (Fig. 4E), straight rhabds, 460–970 x 140–190 µm, cladomes, 225–400 µm per ray. Relatively rare straight oxeas, up to 4520–6460 x 65–80 µm. Microscleres are finely acanthose oxyasters (Figs. 4G–H), 10 µm in diameter and abundant throughout the sponge, finely acanthose sanidasters (Figs. 4I–J), 13 µm in longest extension, rhabd is 1.5–2.5 µm in diameter, actins have inflated points due to a concentration of spines there and measure 1.8–2.7 x 0.5–0.7 µm. Finely acanthose plesiasters (Figs. 4K–L), 48–72 µm in diameter. Sanidasters and plesiasters are rare; the latter observed just below the cortex.

Discussion. The World Porifera Database lists 14 valid species of *Ancorina* and none are known to occur in the North Pacific Ocean. The geographically closest congener is *Ancorina radix* Marenzeller, 1889 which was originally described from the Mediterranean Sea but subsequently recorded from regions of the Northeast Atlantic as far north as eastern Greenland. *A. radix* was described to be nut-sized, without dichotriaenes, and with much shorter triaenes, described as “Stumpwinkler” and “Spitzwinkler” (p. 16), which are, according to the figure (pl. III, 6a–b), plagiotriaenes (rhabds, 980–2100 x 14–80 µm and clads, 70–238 x 28–40 µm) and longer oxeas (“Umspitzer”, 1980–4620 x 28–70 µm). It also differs considerably from *Ancorina buldira* n. sp. based on categories of microscleres, possessing two size categories of oxyasters (large 40–80 µm and small 10–18 µm), and possessing smaller sanidasters (10–80 x 2.5–5 µm) and plesiasters.

Etymology. Named after Buldir Island, the island near the locality where the holotype was collected.

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