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## Bitentaculate Cirratulidae (Annelida: Polychaeta) from the northwestern Pacific Islands with description of nine new species

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### Abstract

Thirteen cirratulid species from the Hawaiian, Mariana and Marshall Islands are described. Nine species are new to science: *Aphelochaeta arizonae* **sp. nov.**, *Aphelochaeta honouliuli* **sp. nov.**, *Caulleriella cordiformia* **sp. nov.**, *Chaetozone michellae* **sp. nov.**, *Chaetozone ronaldi* **sp. nov.**, *Monticellina anterobranchiata* **sp. nov.**, *Monticellina hanaumaensis* **sp. nov.**, and *Tharyx tumulosa* **sp. nov.**, from Oahu, Hawaii and *Aphelochaeta saipanensis* **sp. nov.**, from Saipan in the Mariana Islands. *Dodecaceria fewkesi* and *Monticellina* nr. *cryptica* are newly recorded from the Hawaiian Islands. *Dodecaceria laddi* is widely distributed in the western Pacific and material collected from the Hawaiian, Mariana and Marshall islands is described. We provide SEM photographs for all species in addition to line drawings and methyl green staining pattern photographs for the new species.

**Key words:** taxonomy, new species, Hawaiian Islands, Mariana Islands, Marshall Islands

### Introduction

The cirratulids are comprised of polychaete worms with a single pair of palps or groups of tentacles attached anteriorly. They are easily recognized by the numerous slender filiform branchiae present throughout the body. The family consists of 11 accepted genera organized by Blake (1996b) in three groups, the multitentaculate genera (i.e. *Cirratulus* Lamarck, 1801, *Timarete* Kinberg, 1866, *Protocirrinieris* Czerniavsky, 1881, *Cirriformia* Hartman, 1936, and *Fauvelicirratulus* Çinar & Petersen, 2011), the bitentaculate soft-substrate genera (i.e. *Chaetozone* Malmgren, 1867, *Tharyx* Webster & Benedict, 1887, *Caulleriella* Chamberlin, 1919, *Monticellina* Laubier, 1961, and *Aphelochaeta* Blake, 1991), and the bitentaculate hard-substrate genus (*Dodecaceria* Örsted, 1843).

Recent studies of cirratulid taxonomy have resulted in a large number of undescribed species (Blake 2006; Doner & Blake 2006; 2009; Dean & Blake 2007; 2009; Elias & Rivero 2008; 2009a,b) and a new genus (Çinar & Petersen 2011). However, cirratulids are still poorly known taxonomically since few and inconsistent diagnostic characters are used to describe their morphology (Blake 1996b). This situation is particularly true for the western Pacific islands given that most descriptions are not adequately detailed and several cirratulids have been listed as undetermined species or named after European species.

Studies regarding cirratulid polychaetes from the western Pacific islands were first made by Kinberg (1866), who described *Cirriformia crassicollis* (formerly *Audouinia crassicollis*) from Honolulu reefs. A few decades later, Ehlers (1905) described *Cirriformia semicineta* (formerly *Audouinia semicinetus*) from Honolulu Harbor. Treadwell (1906) then reported *Cirratulus zebuensis* McIntosh, 1885 and *Cirriformia capensis* Schmarda, 1861 (as *Cirratulus capensis*) from Honolulu reefs; however, he did not describe the segmental origin of the tentacles or branchial filaments, basing his description on the shape of chaetae and hooks, which are not relevant in differentiating the multitentaculate genera. Treadwell (1943) described *Audouinia branchiata* from Honolulu, which was later renamed to *Cirriformia hawaiiensis* by Hartman (1956) and transferred to the genus *Timarete* by Magalhães & Bailey-Brock (2010). Hartman (1954) described *Dodecaceria laddi* from Enewetak atoll, northern Marshall Islands, and this species is now known to be broadly distributed in the western Pacific (e.g. Woodwick 1964; Reish 1968; Gibbs 1971; Bailey-Brock *et al.* 1980; Bailey-Brock 1987; Devaney & Bailey-Brock 1987).