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A new species of the snapping shrimp genus *Alpheus* (Crustacea: Decapoda: Caridea: Alpheidae) from Japan, associated with the innkeeper worm *Ikedosoma elegans* (Annelida: Echiura: Echiuridae)

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Abstract

A new species of the snapping shrimp genus *Alpheus* Fabricius, 1798, *Alpheus ikedosoma*, is described and illustrated on the basis of material from Boso Peninsula and Ariake Sea, Japan. All examined specimens were extracted with the help of a bait suction pump from burrows of innkeeper worm (Annelida: Echiura), constructed on easily accessible intertidal sand beaches or sand flats. The host worm from Boso Peninsula was identified as *Ikedosoma elegans* (Ikeda, 1904) (Echiuridae). The new species is tentatively referred to the *A. brevisrostris* (Olivier, 1811) species group, but it is characteristic in having several unusual features for the group, such as the very short rostrum without dorsal ridge, the absence of adrostral grooves on the carapace, the strongly reduced dorsolateral spines on the telson, the unarmed antennal basicerite, the non-elongate, almost glabrous major chela, and the lack of movable spines or spinules on ventromesial margin of each cheliped merus. The new species represents the sixth species of *Alpheus* associated with echiuran burrows.

Key words: *Alpheus ikedosoma*, infauna, symbiotic association

Introduction

It is well known that burrows of innkeeper worms (Annelida: Echiura) provide cryptic habitats for various invertebrate taxa, including mollusks, polychaetes, and in particular, decapod crustaceans (e.g., Morton 1988; Berggren 1991; Anker *et al.* 2005, 2007, 2015; Anker 2012; Marin 2014). Recent sampling with the help of a bait suction pump (yabby pump) has much contributed to the discovery of these symbiotic animals. With regard to the caridean genus *Alpheus* Fabricius, 1798 (Alpheidae), including over 300 species worldwide (De Grave & Fransen 2011), symbiotic association with echiurans has been reported for five species: *A. aequus* Kim & Abele, 1988 [Pacific Panama, associated with *Ochetostoma edax* (Fischer, 1926); Anker *et al.* 2007], *A. barbatus* Coutière, 1899 (Indo-West Pacific, associated with *Ochetostoma erythrogrammon* Leuckart & Rüppel, 1828; Nomura 2000), *A. christofferseni* Anker, Hurt & Knowlton, 2007 (Brazil, associated with *Ochetostoma* cf. *edax*; Anker *et al.* 2005), *A. echiurophilus* Anker, Komai & Marin, 2015 (West Pacific, associated with unidentified Thalassematinae and *O. erythrogrammon*; Anker *et al.* 2015), and *A. naos* Anker, Hurt & Knowlton, 2007 (Pacific Panama, associated with *Listriolobus* sp.; Anker *et al.* 2005). All but *A. echiurophilus* constitute the *A. barbatus* species complex within the *A. brevisrostris* Olivier, 1811 species group (Anker *et al.* 2007); *A. echiurophilus* is referred to the *A. leviusculus* Dana, 1852 species group (Anker *et al.* 2015). Consequently, it could be suggested that the association with echiurans evolved independently in more than one lineage within *Alpheus* (cf. Anker *et al.* 2015).

Investigations of the intertidal and shallow subtidal infaunal decapods in the Japan, conducted by the author and his colleagues since 2006, have contributed to discover several new species or newly recorded species of decapod crustaceans burrowing soft sediments or associated with burrows constructed by various invertebrate taxa (Komai & Tachikawa 2008; Komai 2009; Komai & Fujita 2014; Komai, Fujita & Maenosono 2014; Komai, Maenosono & Fujita 2014; Komai, Nishi & Taru 2014; Anker *et al.* 2015; Komai & Anker 2015; Komai *et al.* in press). In this article, a new species of *Alpheus* associated with burrows of echiuran worm is described and illustrated on the basis of material collected from Boso Peninsula (central Honshu) and the Ariake Sea (Kyushu),