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Diversity of Aulacidae (Hymenoptera: Evanioidea) in the oceanic Ogasawara Islands (Japan), with description of a new species from Anijima Island

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Abstract

In the context of the biodiversity conservation of the oceanic Ogasawara Islands, the parasitoid species of Aulacidae are reviewed. We examined material from eight islands with or without invasion of the introduced lizard *Anolis carolinensis* (Voigt 1832) (green anoles): two species of *Pristaulacus* Kieffer 1900, *P. boninensis* Konishi, 1989, and *P. anijimensis* sp. nov., are recognized. The former species is widely distributed in the islands, whereas the latter species is found from a single island only, Anijima Island. Although this island appears to be currently well preserved, the recent introduction of green anoles will probably affect the conservation status of many species, including the endemic *P. anijimensis* sp. nov. A description of the new species, detailed drawings and descriptions of genitalia of both recognized species, an updated key to Japanese Aulacidae, and a brief discussion on the conservation aspects of Aulacidae in the Ogasawara Islands are provided.

Key words: Biodiversity, green anoles, inventory, new species, oceanic islands, parasitoid, *Pristaulacus*, taxonomy

Introduction

The Ogasawara Islands (= Bonin Islands) are typical oceanic islands, located about 1,000 km to the south of Tokyo in the northwest Pacific Ocean (Ito 1998; Shimizu 2003) and they consist of about 30 small islands scattered in the subtropical area. By this geographical context, their faunas currently include many endemic species. In recent time, the ecosystems of this islands have encountered several problems for their conservation, due to the introduction of the lizard *Anolis carolinensis* (Voigt 1832) (green anoles) (Squamata, Polychrotidae) as documented and discussed by Karube (2001, 2004, 2010) and Makihara *et al.* (2004). The problem of the presence of the green anoles is occurring in many islands including the two largest islands, Chichijima Island and Hahajima Island, whereas Anijima Island, the third largest island, is not currently damaged. In addition, the latter island is having the well-reserved dried forest (mainly composed by *Distylium lepidotum* Nakai, Hamamelidaceae) in the context of the Ogasawara Islands. Unfortunately, the green anoles were newly confirmed on this island in the spring of 2013 (Shimizu 2013). Therefore, the investigation and the conservation of biodiversity of Anijima Island require prompt actions to prevent ecological disasters.

The Hymenoptera of the Ogasawara Islands are currently very poorly investigated, and available data include mainly parasitoids known only from the original description with a single or a few localities (e.g. Townes 1958; Watanabe 1934, 1958).

Recently, we examined a collection of parasitoid wasps from the Ogasawara Islands and found some aulacid specimens, all belonging to the genus *Pristaulacus* Kieffer 1900.

The family Aulacidae includes two extant genera, *Aulacus* Jurine 1807 (containing 77 species), and *Pristaulacus* Kieffer 1900 (containing 169 species) (Smith 2001; Turrisi *et al.* 2009; Turrisi & Madl 2013; Turrisi 2013). Aulacids are koinobiont endoparasitoids of wood-boring larvae of Coleoptera and Hymenoptera (Skinner & Thompson 1960; Jennings & Austin 2004; Turrisi & Vilhelmsen 2010); hosts are mostly larval Cerambycidae, less

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