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The coral killing sponge *Terpios hoshinota* in Kimbe Bay, Papua New Guinea.

The coral killing cyanobacteriosponge *Terpios hoshinota* was initially described from Japan and Guam following an outbreak in 1984 (Rützler & Muzik 1993), but since then has expanded its range to other areas, including Taiwan (Liao et al. 2007), Australia (Fuji et al. 2011), Indonesia (de Voogd et al. 2013, van der Ent et al. 2016), Malaysia (Hoeksema et al. 2014), the Maldives (Montano et al. 2015) and Mauritius (Elliot et al. 2016). *Terpios hoshinota* encrusts a wide range of coral species and outbreaks cause mortality over large areas of reef (Rützler & Muzik 1993). Outbreaks may be devastating on local scales, but reefs can recover, even when the sponge co-exists in the area for 25 years (Reimer et al. 2010) and of course outbreaks can reoccur (Yomogida et al. 2017)

During recent sponge biodiversity and coral health surveys in Kimbe Bay, Papua New Guinea, the dark gray encrusting sponge was observed overgrowing live corals in the genera *Acropora* (branching and plate species), *Montipora* (branching and encrusting species), *Goniastrea*, *Leptoria*, and *Pocillopora* on the reef flat at Kimbe Island (Figure 1). When preserved, the sponge tinted ethanol a green colour, indicating the presence of cyanobacteria. Examination of the sponge spicules under light and scanning electron microscopes confirmed the distinctive spicule tylostyles to be those of *T. hoshinota*. The specimen of *T. hoshinota* collected from Kimbe Bay was compared to specimens of *T. hoshinota* previously collected from Japan and Australia (Fuji et al. 2011). This particular specimen from Kimbe Bay (QM G336069), along with another specimen from Australia (QM G331911) and the specimen from Japan (QM G331910), show a larger maximum tylostyle width than the original description (Rützler & Muzik 1993) see Table 1. The head of the tylostyles of these specimens (Figure 2) match those of *T. hoshinota* which have characteristic lobes that separate it from other *Terpios* species with a similar colouration i.e. *T. granulosa* Bergquist, 1967, *T. viridis* Keller, 1891, *T. fugax* Duchassaing & Michelotti, 1864 and *T. manglaris* Rützler & Smith, 1993.

This is the first record of *T. hoshinota* from Papua New Guinea, extending its range into the South Pacific Ocean. Kimbe Bay has previously been searched by the authors for sponge biodiversity in 2007 and corals from 1997 till 2016 with no previous signs of corals affected by *T. hoshinota*. In addition, the authors have been conducting sponge biodiversity surveys in other parts of Papua New Guinea, including Milne Bay (2005), South Papua New Guinea Barrier Reef (1996), and Vanuatu (1996, 1997, 2008), and *T. hoshinota* has never been recorded before, further strengthening the hypothesis that this is a recent introduction into Kimbe Bay. The influence of disturbances such as coral bleaching, disease and naturally-occurring predators such as the crown-of-thorns starfish, *Acanthaster planci* (Linnaeus 1758) on coral abundance is well documented, but the current and potential future impact of invasive species



FIG. 1. *Terpios hoshinota* overgrowing live corals at Kimbe Island, Kimbe Bay, Papua New Guinea on the 19th of November 2016 (5.20328°S, 150.3803°E).



FIG. 2. Tylostyle heads of *Terpios hoshinota* QM G336069

TABLE 1. Tylostyle measurements (minimum, average, maximum) of specimens of *Terpios hoshinota* (in µm).

Specimen, location	n	Total Length	Maximum width	Neck Width	Head Width	Head Length
Description	?	160-290	2.0-4.0	1.5-3.5	3.5-7.0	4.0-7.5
USNM43144, Japan	?	180-252-290	3.0-3.5-4.0	2.0-2.7-3.0	5.5-6.1-7.0	4.5-5.2-6.0
G331910, Japan	25	175-244-283	2.2-5.2-7.0	2.4-3.7-4.9	3.2-6.4-8.9	3.7-6.6-8.2
G331911, Australia	25	171-222-251	2.2-3.2-4.2	1.2-2.2-3.2	3.9-5.8-8.9	2.7-4.6-5.9
G336069, PNG	45	152-216-329	2.2-6.4-10.7	2.5-4.0-5.9	4.1-6.8-9.5	3.9-4.0-9.2

on Indo-Pacific coral reefs has received little attention. Our observations highlight the potential significance of invasive species as an agent of coral decline warranting greater attention.

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