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Porites randalli: a new coral species (Scleractinia, Poritidae) from American Samoa

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Abstract

A new species of scleractinian coral, *Porites randalli* **spec. nov**. (Scleractinia, Poritidae), previously known as *Porites* sp. 2, is described from American Samoa. *P. randalli* typically forms small pale green colonies that are usually <5 cm in diameter, with a surface reticulated with small (0.5 cm–2 cm) nubbins or protuberances. Colonies have been observed between 1–12 m depths in a variety of reef habitats and are among the most common corals in American Samoa. Corallites are approximately 1 mm in diameter and are sunken with a visible ring of pali. The columella is either lacking or small, with 1,2 or no radii, six pali (five large and a small one on the dorsal septum). Corallite walls rise gradually with concentric rows of denticles. *Porites randalli* **spec. nov.** is an example of cryptic diversity; it is a small coral that at first glance can be overlooked or mistaken for a young colony of other species.

Key words: Cnidaria, Scleractinia, *Porites*, Poritidae, new species, American Samoa

Introduction

Porites randalli **spec. nov**. (previously known as *Porites* sp. 2) is among the most common corals in American Samoa. The first intensive survey of corals around American Samoa took place in 1985 (Birkeland *et al.* 1987). Studies prior to this (e.g. Mayor 1924, Hoffmeister 1925) focused on larger "adult" colonies, and had no descriptions or photographs of corals similar to *P. randalli.* In 1985 and all subsequent surveys that included smaller corals (cf. Previous records), *Porites* sp. 2 was seen to be prevalent. Surveys indicate it is sometimes the most common coral in Fagatele Bay National Marine Sanctuary, Fatumafuti, Faga'alu, Fagaitua, and Masefau and has been the second most common coral at Aunu'u and Vatia on Tutuila (Birkeland et al 1987, Mundy 1996, Fisk & Birkeland 2002). Extensive analyses by McArdle (2003) of the coral surveys performed on Tutuila over the decades found that *Porites* sp. 2 was uniformly distributed among the depths surveyed (1 m – 12 m). McArdle also determined that *Porites* sp. 2 was very rare in areas with polluted waters (e.g. Pago Pago Harbor), but abundant in clear water (e.g. Fagatele Bay).

This previously undescribed species is abundant and ubiquitous on the volcanic islands of American Samoa (Tutuila, Aunu'u, Ofu, Olosega, and Ta'u), yet it has never been reported elsewhere. *P. randalli* **spec. nov**. is morphologically distinct from similar species in the region (*P. annae, P. lichen*) at both the colony and corallite levels, and is genetically distinct according to nuclear (ITS; NCBI # FJ416519-22) and mitochondrial (COI; NCBI# FJ423966, Putative mitochondrial control region; NCBI# FJ427368) markers (Forsman *et al.* 2009; Figure 1).

Porites randalli **spec. nov**. may be important for monitoring and understanding climate change as it is unusually susceptible to coral bleaching. In a survey during 2002, there was a period of bleaching from unusually warm seawater and 92.9% of the *P. randalli* **spec. nov**. were bleached (Fisk and Birkeland 2002). *P. randalli* **spec. nov**. appears to be particularly sensitive because the average for all coral colonies was only

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