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# First record of a mesophotic *Pachyseris foliosa* reef from Japan

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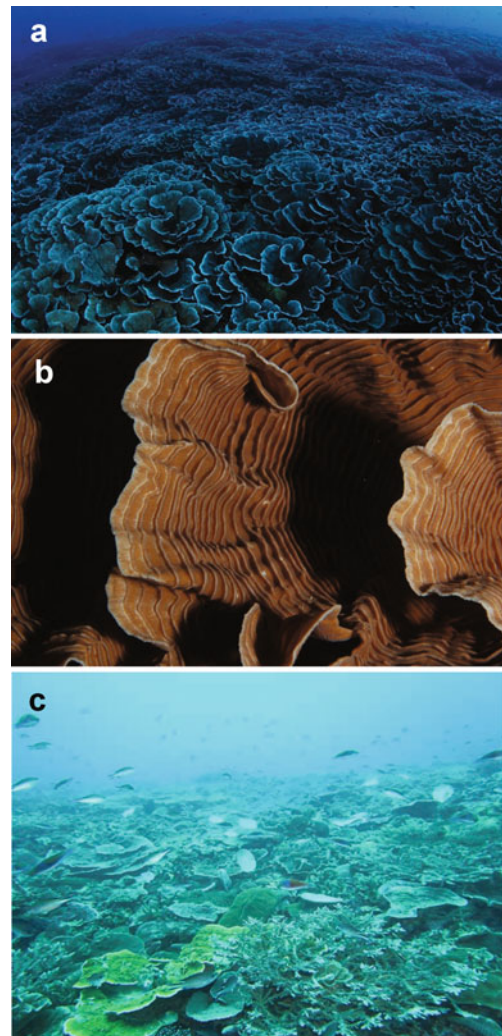
Mesophotic reefs have been reported from Okinawa in the past (Yamazato 1972) and since then little information on their occurrence and abundance has been added (but see Sinniger et al. 2012). In 2011, a previously unknown reef at 25–45 m depth was discovered off the west coast of Onna Village, Okinawa. Surprisingly, the reef consisted primarily of *Pachyseris foliosa* Veron, 1990, (Fig. 1a, b) which has not previously been recorded from Japan (Veron 1990). Identification of the corals was confirmed by comparison with the holotype of *P. foliosa* (MTQ G 33228) and with specimens of *P. speciosa* (Dana, 1846): *Pachyseris* specimens (RUMF-ZG-04371) sampled from this reef had flattened, foliose, unifacial plates with deeply divided margins (Fig. 1b). Transect and GPS data collected in April–May 2012 indicate the reef to be approximately 300 × 100 m<sup>2</sup>, with almost 100% *Pachyseris* coverage at 32–45 m depth (Fig. 1a). At 25–32 m, the diversity was much higher, with *Acropora* spp., fungiids, *Galaxea* spp. and *P. foliosa* (Fig. 1c).

On the main island of Okinawa, many shallow coral reefs were heavily damaged by coral bleaching in 1998, and some coral species became locally extinct (Loya et al. 2001).

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**Fig. 1** **a** Reef showing numerous colonies of *Pachyseris foliosa*, (depth 38 m); **b** close-up of *P. foliosa* (depth 35 m); **c** reef showing corals of different genera, (depth 28 m)

Future research should examine if this reef escaped bleaching in 1998, thereby acting as a refuge for the high diversity of coral species found there. The discovery of this large upper mesophotic area covered with a previously unreported species in Japan suggests the possibility of the existence of more unknown mesophotic reefs and previously unrecorded coral species in Okinawa.

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