

# Range extensions of three species of the Family Caryophylliidae (Scleractinia) in the eastern Pacific Ocean

S. González-Romero\*, H. Reyes-Bonilla\*\* and S.D. Cairns†

\*Universidad Autónoma de Baja California Sur, Departamento de Biología Marina, Apartado postal 19-B, CP 23080, La Paz, BCS, MEXICO.

†Department of Invertebrate Zoology, National Museum of Natural History, WW-329, Smithsonian Institution, PO Box 37012, Washington, D. C. 20013, U.S.A. ‡Corresponding author, e-mail: hreyes@uabcs.mx

We report the finding of two coral species of the Family Caryophylliidae (*Caryophyllia diomedea* and *C. quadragenaria*) significantly north of their known distribution limit in the eastern Pacific, and a new record of the family for the same region (*Goniocorella dumosa*, previously known only for the western Pacific).

Keywords: [Please supply keywords for this paper](#)

The Family Caryophylliidae Gray, 1847 (Cnidaria: Scleractinia), has almost 300 species in 42 genera (Cairns, 1999); these corals occur in all world oceans and at depths from less than 10 m to over 5000 m (Cairns, 2004). In this paper we report the finding of three species of this family from the southern California abyssal plain (off San Diego, California, USA) and in the Galápagos Islands, Ecuador, all of which represents new distribution records.

Two colonies of the coral *Caryophyllia diomedea* Marenzeller, 1904 (Figure 1) were collected in February 2006 by the ROV 'Tiburón' of the Monterey Bay Aquarium Research Institute (MBARI) off California, at San Marcos Seamount (32.637923°N 121.505619°W; station T669 [sample A13 and A14]) in a depth of 2133 m. This is a cosmopolitan species present in the Mediterranean, the north-east Atlantic, Australia, New Zealand, and around Antarctica, at depths from 35 to 2500 m (Zibrowius, 1980; Cairns, 1982, 1995, 2004). In the eastern Pacific, *C. diomedea* previously has been reported from the following localities: Panamá, Costa Rica (Cocos Island), Ecuador (Galápagos Islands) at 245 to 1043 m (Cairns, 1991), Chile at 1760 m (Cairns et al., 2005), and México (at Los Angeles Bay, northern Gulf of California) at 396 to 612 m, and 2034 to 2086 m (south of Ensenada, western Baja California; Parker, 1963; Reyes-Bonilla & Cruz-Piñón, 2000; Reyes-Bonilla et al., 2005, Reyes-Bonilla et al., 2008). The record from the San Marcos Seamount is the first of the presence of this species in the United States, as well as a new depth record off the western coast of the Americas.

During the same ROV 'Tiburón' expedition, the abyssal species *Caryophyllia quadragenaria*, Alcock, 1902 (Figure 2) was found on San Juan Seamount (33.133973°N 120.900608°W; station T664, sample R28), at a depth 1669, and in Rodríguez Seamount (33.991677°N 121.116952°W; station T670, sample, R21), at a depth of 986 m. This is the second documentation of this coral in the eastern Pacific, following that of Cairns et al. (2005) from Chile at 705 to 730 m deep, and extends the bathymetric and latitudinal range of the species about 1000 m and 65 latitude degrees in this region. Worldwide, *C. quadragenaria* is known from western Pacific (Japan, Korea, Indonesia, Western Australia and New Zealand) at depths of 54 to 430 m (Cairns, 1995, 1998, 2004).

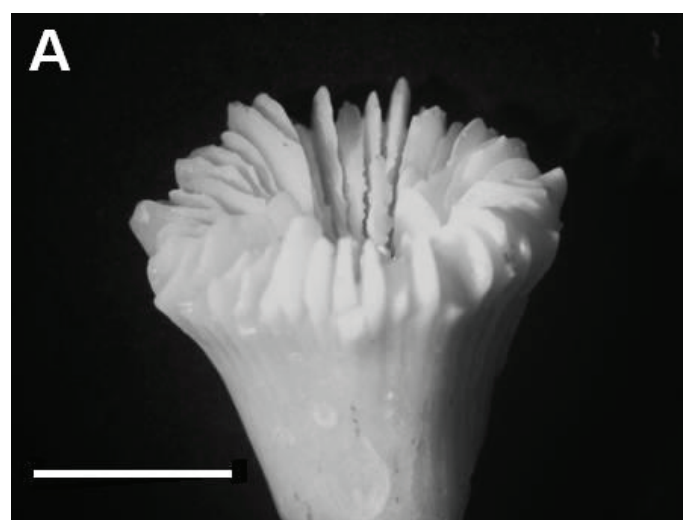


Figure 1. *Caryophyllia diomedea* (MBARI T669-A14). Scale bar: 5 mm.

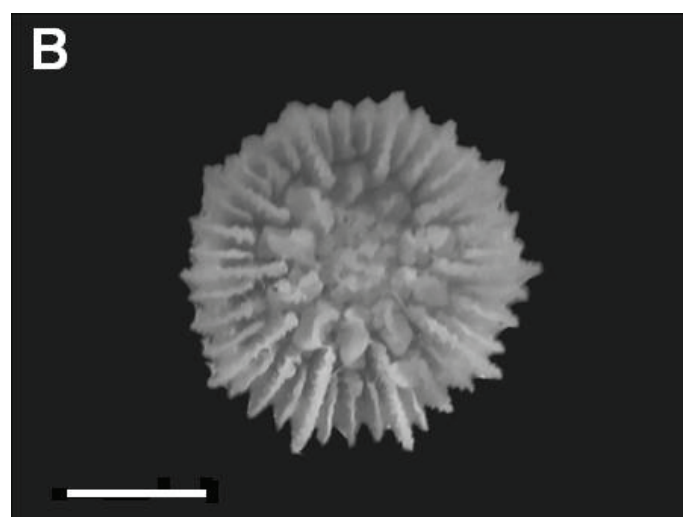


Figure 2. *Caryophyllia quadragenaria* (MBARI T664-R28). Scale bar: 2 mm.

Finally, the unusual coral *Goniocorella dumosa* Alcock, 1902 (Figure 3), was collected at Pinta Island, Galápagos, Ecuador (0°34'N 90°34'W), at 268 m, by the Johnson Sea Link research submersible on 19 October 1995 (JSL19-X-95, sample 3-9). The colony is deposited in the collection of the Department of Invertebrate Zoology at the National Museum of Natural History, Smithsonian Institution, Washington (USNM 98446). This species builds deep-water bioherms and it was considered exclusive to the Indian Ocean and western Pacific as is reported only from Japan, Korea, New Zealand and South Africa, at depths of 88 to 1488 m (Cairns, 1995); however, Cairns (1999) and Reyes-Bonilla (2002) included *G. dumosa* in their eastern Pacific listings of scleractinian corals, although no detailed information on distribution was given. With this addition to the eastern Pacific azooxanthellate coral fauna, the total number of known species is increased to 97 (Reyes-Bonilla, 2002; Cairns et al., 2005).

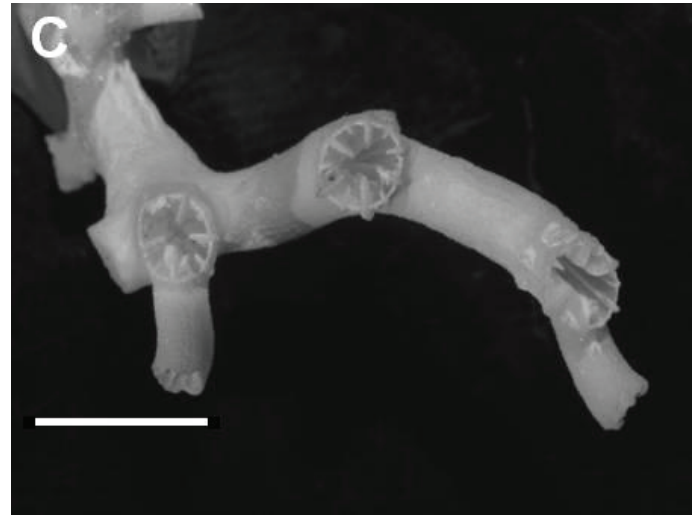


Figure 3. *Goniocorella dumosa* (USNM 98446). Scale bar: 8 mm.

The visit to the Smithsonian Institution by the first and second authors was supported by Comisión Nacional para el Conocimiento y Uso de la Biodiversidad of México, grant DK006 (to HRB). We thank Lonnie Lundsten (MBARI) for loan of the specimens of *Caryophyllia* spp., and information on their reference numbers.

## REFERENCES

- Cairns, S.D., 1982. Antarctic and subantarctic Scleractinia. *Antarctic Research Series*, **34**, 1–74.
- Cairns, S.D., 1991. A revision of the ahermatypic Scleractinia of the Galápagos and Cocos Islands. *Smithsonian Contributions to Zoology*, **504**, 1–44.
- Cairns, S.D., 1995. The marine fauna of New Zealand: Scleractinia (Cnidaria: Anthozoa). *New Zealand Oceanographic Institute Memoir*, **103**, 1–210.
- Cairns, S.D., 1998. Azooxanthellate Scleractinia (Cnidaria, Anthozoa) of Western Australia. *Records of the Western Australian Museum*, **18**, 361–417.
- Cairns, S.D., 1999. Species richness of Recent Scleractinia. *Atoll Research Bulletin*, **459**, 1–12.
- Cairns, S.D., 2004. The azooxanthellate Scleractinia (Coelenterata: Anthozoa) of Australia. *Records of the Australian Museum*, **56**, 1–329.
- Cairns, S.D., Haussermann, V. & Försterra, G., 2005. A review of the Scleractinia (Cnidaria: Anthozoa) of Chile, with the description of two new species. *Zootaxa*, **1018**, 15–46.
- Parker, R.H. (1963) Zoogeography and ecology of some macro-invertebrates, particularly mollusks, in the Gulf of California and the continental slope off Mexico. *Videnskabelige Meddelelser fra dansk Naturhistorisk Forening*, **126**, 1–178.
- Reyes-Bonilla, H. & Cruz-Piñón, G., 2000. Biogeography of the ahermatypic corals (Scleractinia) of the Mexican Pacific. *Ciencias Marinas*, **26**, 511–531.
- Reyes-Bonilla, H., 2002. Checklist of valid names and synonyms of stony corals (Anthozoa: Scleractinia) of the eastern Pacific Ocean. *Journal of Natural History*, **36**, 1–13.
- Reyes-Bonilla, H., Calderón-Aguilera, L.E., Cruz-Piñón, G., Medina-Rosas, P., López-Pérez, R.A., Herrero-Perezrul, M.D., Leyte-Morales, G.E., Cupul-Magaña, A.L. & Carriquiry-Beltran, J.D., 2005. *Atlas de los corales pétreos (Scleractinia) del Pacífico mexicano*. Guadalajara: CICESE/CONABIO/CONACYT/UABCS/UdG/UMar.
- Reyes-Bonilla, H., González-Romero, S., Cruz-Piñón, G. & Calderón-Aguilera, L.E., 2008. Corales pétreos. In *Bahía de los Ángeles: recursos naturales y comunidad. Línea base 2007* (ed. G.D. Danemann and E. Excurra), pp. 291–317. Ensenada: INE/CONANP/PRONATURA.
- Zibrowius, H., 1980. Les Scléractiniaires de la Méditerranée et de l'Atlantique Nord-Oriental. *Memoires de l'Institut Océanographique, Monaco*, **11**, 1–127.

Submitted 7 May 2008. Accepted 15 September 2008.