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Revision of the Indo-Pacific cardinalfish genus *Siphamia* (Perciformes: Apogonidae)

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Abstract

The Indo-Pacific apogonid genus *Siphamia* Weber 1909 is unique among cardinalfishes in having a bacterial bioluminescent system and spinoid scales. Light is produced by luminous bacteria found in a small pocket connected to the gut in the abdominal cavity and in a sac on each side of the tip of the tongue. *Siphamia* consists of 23 small species many of which are associated with invertebrates such as sea urchins, crown-of-thorns starfish and coral. Species of this genus fall into two main groups with different dark pigment pattern of the longitudinal translucent muscle acting as a light organ that diffuses light along the ventral edge of the body. The *S. tubifer* group, with a striated light organ, includes *S. arabica*, new species, from the Gulf of Oman; *S. argentea* from the Philippines and northern Western Australia; *S. fraseri*, new species, from New Caledonia, Tonga and Fiji; *S. fuscolineata* from the Marshall and Line islands; *S. goreni*, new species, from the southern Red Sea; *S. guttulata* from Darnley Island, Queensland; *S. jebbi* from the western Pacific, ranging from the Philippines to Western Australia and east to the Caroline Islands, Fiji, and Tonga; *S. majimai* from the Ryukyu and Ogasawara islands to northwestern Australia, ranging eastward to New Caledonia and Tonga; *S. mossambica* from the western Indian Ocean; *S. randalli*, new species, from the Society and Cook islands; *S. spinicola*, new species, from Biak in eastern Indonesia, Papua New Guinea, Woleai Atoll, Vanuatu, New Caledonia and the Chesterfield Islands; *S. stenotes*, new species, from the Triton Bay area of Irian Jaya Barat Province of Indonesia; and *S. tubifer* ranging widely in the Indo-West Pacific from the Red Sea to Madagascar and east to Vanuatu. The *S. tubulata* group, with a dark-dotted light organ, includes *S. brevilux*, new species, from Papua New Guinea; *S. cephalotes* from southern Australia; *S. corallicola* from Indonesia, Sabah, and Timor Sea; *S. cuneiceps* from Western Australia and the east coast of Queensland; *S. cyanophthalma*, new species, from the Philippines, Palau, Indonesia, and Papua New Guinea; *S. elongata* from the Philippines and Brunei; *S. fistulosa* from Java, Sumbawa and Komodo, Indonesia, and Brunei; *S. roseigaster* from Western Australia, ranging along the northern and eastern coast of Australia south to Sydney Harbour, New South Wales; *S. senoui*, new species, from the Ryukyu Islands, Japan; and *S. tubulata* from the Papua Barat Province, Indonesia, south coast of Papua New Guinea, northern Western Australia and Queensland.

Key words: bioluminescence, distribution, new species, phylogenetic relationship, spinoid scales, taxonomy