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Description of a new species of rabbitfish (Perciformes: Siganidae) from southern India, Sri Lanka and the Maldives

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Abstract

Siganus insomnis **sp. nov.** is described from the Maldives, Sri Lanka and southern India. It most closely resembles *S. lineatus* (Valenciennes) from the Western Pacific but differs in coloration, principally in that most if not all of the bronze bands on its mid and upper sides continue horizontally and unbroken through to the nape and opercular slit. By contrast, in *S. lineatus*, typically the anterior area below the spinous dorsal fin down to the mid-sides is irregularly marked with golden bronze spots, commas, or a maze of contorted lines. *S. guttatus* (Bloch) is the third member of this group of sibling species; its sides are covered with orange to bronze-gold spots. It is distributed throughout S.E. Asia, i.e., it occupies a geographic position between the areas inhabited by *S. lineatus* and *S. insomnis*. Thus the gene pools of *S. lineatus* and *S. insomnis* are quarantined from one another by distance and the intervening presence of *S. guttatus* in S.E. Asia. The geographical separation of the populations of *S. lineatus* and *S. insomnis* from one another is reinforced by the absence of suitable, coralline habitats for these species in the western half of the Bay of Bengal.

Key words: Siganidae, rabbitfish, *Siganus insomnis* **sp. nov.**, *Siganus lineatus*, *Siganus guttatus*, systematics, biology

Introduction

The extant species of Siganidae are morphologically a very uniform group of fishes. For example, they all have dorsal fins with 13 spines and 10 rays and anal fins with 7 spines and 9 rays. On the other hand, they may be grouped into 3 clades: deep bodied species, slender bodied species, and streamlined, spindle-shaped species. At a lower level of classification, colour patterns are most useful for distinguishing between the more closely related species. Using these criteria Woodland (1990) identified 27 species. He recognized as different a number of sibling species, mostly pairs of species, united by similarities in colour and form but distinguishable from one another by details of coloration. For example, *Siganus guttatus* (Bloch 1787) and *S. lineatus* (Valenciennes 1835) both have a very large yellow spot below the last few rays of the dorsal fin; but the sides of the former species are spotted while the sides of the latter are variously marked with a mixture of bands and spots, the bands often anastomosing or being replaced by spots antero-dorsally (Figs. 1, 2).

All the sibling species recognized by Woodland (1990) had either parapatric or allopatric distributions. Exceptionally, his *S. lineatus* also had a disjunct distribution: a widespread Western Pacific population east of Wallacea, and another in the area around southern India. He noted that specimens from Sri Lanka and southern India were marked differently from those from the Pacific: the bands on the sides breaking up into spots below the leading dorsal-fin spines with the spots continuing onto the nape in Pacific specimens but not in specimens from the area around south India. That observation was based on a sample of just four preserved specimens from southern India and Sri Lanka, and two underwater photos of fish taken in Sri Lanka: one by J.E. Randall (Woodland 1990, pl. XI, F), another by R.C. Steene (in Allen & Steene, 1987, pl. 126–4, as *S. guttatus*). The latter photo was subsequently reproduced in Burgess *et al.* 1988, Kuiter & Debelius, 2001 (as *Siganus c.f. lineatus*, "undescribed species"), and Allen *et al.,* 2003. Our second author published an underwater photo of this species

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had reported that at Palau *S. lineatus* was active at night. In a study specifically designed to investigate this phenomenon, Fox and Bellwood (2011) found that those *S. lineatus* that inhabited a boulder shoreline site at Lizard Island, Great Barrier Reef, fed during the day and slept at night, while those living on the nearby coral reef zone foraged only at night and remained stationary beside favoured coral bommies during the day.

Etymology. We chose the specific epithet *insomnis* (Latin, sleep-less) to allude to the nocturnal activity of this fish. It is an adjective agreeing in gender with *Siganus* (masculine).

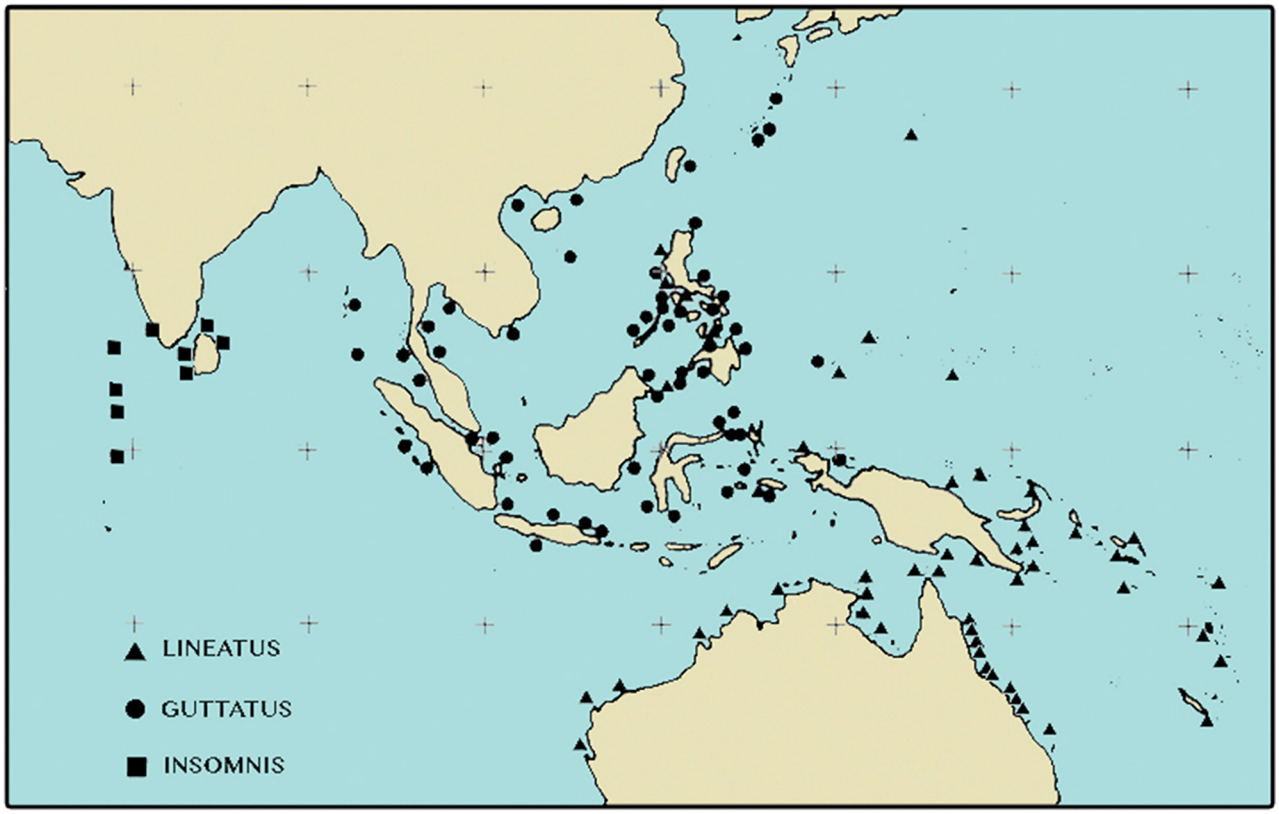

FIGURE 8. Distribution records for *Siganus insomnis* n.sp., *Siganus guttatus* (Bloch), and *Siganus lineatus* (Valenciennes). Records for *S.guttatus* and *S.lineatus* from Woodland (1990), Borsa *et al*.(2007) and Kuriiwa *et al*. (2007).

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