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Gymnocranius obesus, a new large-eye seabream from the Coral Triangle

Gymnocranius obesus, un nouveau bossu blanc du Triangle de Corail

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ABSTRACT

Two previously recorded new species of the large-eye seabream genus *Gymnocranius* (*Gymnocranius* sp. D and *Gymnocranius* sp. E) remain undescribed. Here we describe *Gymnocranius* sp. E as *Gymnocranius obesus* sp. nov. This new species is morphologically distinct from all other known species under *Gymnocranius* by the following combination of characters: relatively deep body, with ratio of standard length to body depth 2.2–2.4; protruding large eye, with eye diameter about equal to or slightly larger than inter-orbital width; caudal fin moderately forked; no blue spots or wavy blue lines on cheek and snout in adults; fourth transversal dark bar on flank running from the sixth spine of the dorsal fin to the origin of the anal fin; anal, caudal and dorsal fins drab with yellowish to yellow margins. *Gymnocranius obesus* sp. nov. is distinct from *G. griseus*, with which it has been previously confused by a relatively larger head, scales above lateral line without dark basal patch, and a smaller number of front scales on the dorsal side of the head. *Gymnocranius obesus* sp. nov. is genetically distinct from its closest known relative, *Gymnocranius* sp. D by 104 diagnostic nucleotide characters, which translates into a 9.6% sequence divergence at the mitochondrial cytochrome *b* gene. *Gymnocranius obesus* sp. nov. reaches a length of at least 295 mm. Its distribution, from the Ryukyu Islands to Bali, including Taiwan and the Flores Sea, mostly coincides with the western half of the Coral Triangle.

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R É S U M É

Deux nouveaux bossus blancs du genre *Gymnocranius*, précédemment signalés comme *Gymnocranius* sp. D et *Gymnocranius* sp. E, restent non décrits. Nous décrivons ici *Gymnocranius* sp. E comme *Gymnocranius obesus* sp. nov. Cette nouvelle espèce est morphologiquement distincte de toutes les autres espèces connues du genre *Gymnocranius* par la combinaison de caractères suivante : corps relativement haut, où le rapport de la longueur standard à la hauteur du corps est 2,2–2,4 ; œil saillant, large, dont le

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diamètre est approximativement égal ou légèrement supérieur à la distance interorbitaire ; nageoire caudale modérément fourchue ; pas de taches bleues ni de lignes bleues ondulées sur la joue et le museau chez les adultes ; quatrième barre transversale sombre sur le flanc allant de la base du sixième rayon de la nageoire dorsale à l'origine de la nageoire anale ; bord externe des nageoires anale, caudale et dorsale jaunâtre à jaune. *Gymnocranius obesus* sp. nov. se distingue de *G. griseus*, avec lequel il a été précédemment confondu, par une tête relativement plus grande, des écailles au-dessus de la ligne latérale sans patch basal sombre, et un plus petit nombre d'écailles frontales sur le dos de la tête. *Gymnocranius obesus* sp. nov. est génétiquement distinct de son plus proche parent connu, *Gymnocranius* sp. D, par 104 caractères nucléotidiques diagnostiques au gène mitochondrial du cytochrome *b*, ce qui se traduit par une divergence de séquence de 9,6%. *Gymnocranius obesus* sp. nov. atteint au moins 295 mm de longueur. Sa distribution, des îles Ryukyu à Bali en passant par Taïwan et la mer de Flores, coïncide essentiellement avec la moitié ouest du Triangle de Corail.

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1. Introduction

Large-eye seabreams of the genus *Gymnocranius* Klunzinger 1870 occur in the tropical and warm-temperate coastal waters of the Indo-West Pacific region. They dwell over sandy bottoms at or in the vicinity of coral reefs, at depths ranging from 1 m to about 80 m [1–3]. The genus *Gymnocranius*, together with the genera *Gnathodentex* Bleeker 1873, *Wattisia* Chan and Chilvers 1974, and *Monotaxis* [Bennett] 1830 form the Monotaxinae, which is one of the two subfamilies of the perciform family Lethrinidae [1]. The genus *Gymnocranius* currently comprises 10 valid species described between 1830 and as recently as 2013 [4]. These are: *G. audleyi* Ogilby 1916 [5], *G. elongatus* Senta 1973 [6], *G. euanus* (Günther 1879) [7], *G. frenatus* Bleeker 1873 [8], *G. grandoculis* (Valenciennes 1830) [9], *G. griseus* (Temminck and Schlegel 1843) [10], *G. microdon* (Bleeker 1851) [11], *G. oblongus* Borsa, Béarez and Chen 2010 [2], *G. satoi* Borsa, Béarez, Paijo and Chen 2013 [3], and *G. superciliosus* Borsa, Béarez, Paijo and Chen 2013 [3]. Twelve other species that have been described since 1830 have been recognized as junior synonyms of the foregoing [4]. In addition, *G. olivaceus* Fourmanoir 1961 [12], is recognized as a junior synonym of *Wattisia mossambica* (Smith 1957) [1,13]. *Sparus ornatus* Sevanoff 1805 [14] has lost its precedence to its junior synonym *G. grandoculis* because the species name was not used after 1899 (Article 23.9 of the International Code of Zoological Nomenclature [15]).

Large-eye seabreams are sold at local fish markets throughout the tropical and warm-temperate Indo-West Pacific ([1]; authors' personal observations). Specimens suspected to possibly represent two unknown *Gymnocranius* species were first noticed at the Kedonganan fish market in Bali in February 2007 (Supplementary Figs. S1A, B and S3A). Provisional species names *Gymnocranius* sp. D and sp. E were given [3,16]. These two species were subsequently observed by WJC, along with other *Gymnocranius* species, at several local fish markets in eastern and southern Taiwan and on Penghu Islands in the Taiwan Strait during a biodiversity survey of lethrinid fishes in Taiwanese waters [16]. The two species differed by their

patterns of dark bars on the flank and by the colouration of the margin of the caudal fin, which is reddish in *Gymnocranius* sp. D and yellowish in *Gymnocranius* sp. E [16]. Other specimens of these two species were simultaneously collected from the Ryukyu Islands by RM, who reached the same conclusions. Two of us (PB, WJC) initially intended to describe *Gymnocranius* sp. D together with *Gymnocranius* sp. E. However, as a paper by RM describing *Gymnocranius* sp. D was already in preparation, all three present co-authors agreed to separately describe the other species. The objective of the present paper is thus to describe *Gymnocranius* sp. E as a new species based on morphological and molecular diagnoses.

2. Materials and methods

2.1. Material examined

Specimens chosen as type material for the new species, *Gymnocranius obesus* sp. nov., were deposited at the Division of Fisheries Science, University of Miyazaki (MUFS) and at the National Taiwan University Museums, Taipei (NTUM) collections. Our specimen Let1006 collected from Fugang fishing port (22°47'30"N 121°11'31"E), Taiwan, 03 October 2013 (Fig. 1), catalogued No. NTUM 12079, was selected as the holotype. Seven other specimens were designated as paratypes: MUFS 25522 from Yaku-shima, Ryukyu islands, Japan, 11 August 2008; MUFS 41271 and MUFS 41272 from Okinawa Island, Japan, 27 October 2012; and NTUM 10766 including four individuals with sample Nos. Let998, Let999, Let1004, and Let1005 from Fugang fishing port, Taiwan, 03 October 2013 (Fig. 1). Additional voucher specimens are listed in Supplementary Table S1 and Supplementary Fig. S1.

The comparative material used for morphological examination included: NTUM 10722 (*G. griseus*; one individual: Let734), Chenggong fishing port, Taiwan; NTUM 10768 (*G. griseus*; six individuals: Let1000, Let1001, Let1007–Let1010) from Fugang fishing port; NTUM 10808 (*G. griseus*; one individual: Let1168) from Fugang fishing port; NTUM 10818 (*Gymnocranius* sp. D: one individual,

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