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## *Eviota brahmi* n. sp. from Papua New Guinea, with a redescription of *Eviota nigriventris* (Teleostei: Gobiidae)

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### Abstract

Greenfield & Randall (2011) described the gobiid fishes *Eviota dorsogilva* from Fiji and *E. dorsopurpurea* from Papua New Guinea as new species in what they termed the *Eviota nigriventris* complex. They also extended the range of *E. nigriventris*, type locality Banda Sea, to Milne Bay, Papua New Guinea. In the present paper, we describe their misidentified *E. nigriventris* from Papua New Guinea as a new species, *E. brahmi*, and redescribe *E. nigriventris* based on new material from near the type locality. The four species of this complex differ mainly in coloration, but are also shown to be distinct using mitochondrial and nuclear DNA.

**Key words:** *Eviota dorsogilva*, *Eviota dorsopurpurea*, Banda, Indonesia, phylogeny

### Introduction

Greenfield & Randall (2011) described two new species in the *Eviota nigriventris* complex, *E. dorsogilva* (Fig. 1) and *E. dorsopurpurea* (Fig. 2). These species differed in coloration from what had been recognized in the literature as *E. nigriventris* (Fig. 3). Giltay (1933) described *E. nigriventris* from a small island in the Banda Sea, Entre Banda Neira et Goenoeng Api, without any information on the color in life. In order to determine which species was *E. nigriventris*, Greenfield & Randall (2011) examined the syntypes of *E. nigriventris* that are in poor condition (Fig. 4). They noticed that the black basicaudal spot is symmetrically semicircular in *E. dorsogilva* and *E. dorsopurpurea*, but asymmetrically rounded in *E. nigriventris*. Although in poor condition, they concluded that the caudal spot in the syntypes tended to be more sloped than rounded. Allen & Erdmann (2012) collected specimens in the *E. nigriventris* complex at various localities throughout the East Indies. Mark Erdmann's son, Brahm, who started SCUBA diving at the age of 10, became interested in the small fishes on the reef, but pointed out that the fishes similar to *E. nigriventris* captured at Raja Ampat did not match the photos of that species in his father's book. Mark Erdmann then made a specific effort to collect specimens at Gunung Api, near the type locality of *E. nigriventris*, but they agreed in coloration with the Raja Ampat specimens and differed from what had recently been recognized as *E. nigriventris* in the literature (Figs. 1 & 10 in Greenfield & Randall, 2011, and page 919 in Allen & Erdmann, 2012) The true *E. nigriventris* is redescribed here, and the Papua New Guinea specimens previously thought to be *E. nigriventris* are described as new in honor of Brahm Kai Erdmann.

In their 2011 paper Greenfield & Randall mentioned that they did not have genetic information to help determine whether the various color forms in the *E. nigriventris* complex are genetically distinct and are indicative of distinct species. We now provide sequence data from mitochondrial and nuclear DNA, thus additional evidence that the unique color morphs within this complex represent genetically distinct species.

The new species fits the description typical of all species of *Eviota*: the pelvic fins are separate and the 5<sup>th</sup> pelvic-fin ray, if present, is unbranched; the membrane joining the 5<sup>th</sup> pelvic-fin rays is rudimentary or absent; there are ctenoid scales on the body but no scales on the head, nape or pectoral-fin base; the breast either lacks scales or



**FIGURE 12.** Underwater photograph of *Eviota dorsogilva*, Fiji, Vanua Levu Barrier Reef, 20 m. Photograph by J. Eyre.



**FIGURE 13.** Distribution of species of the *E. nigriventris* complex in the East Indies. White circles = *E. nigriventris*, red circles = *E. brahmi*, yellow circles = *E. dorsopurpurea*. *Eviota dorsogilva* occurs in Fiji and is not shown.

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