Eleotris bosetoi (Teleostei: Gobioidei: Eleotridae), a New Species of Freshwater Fish from the Solomon Islands

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Eleotris bosetoi (Teleostei: Gobioidei: Eleotridae), a New Species of Freshwater Fish from the Solomon Islands[1]

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Abstract: A new species of *Eleotris*, a freshwater eleotrid, is described from streams of the Solomon Islands using both genetic analysis based on the mitochondrial *COI* gene and morpho-meristic study. The new species is separated from *E. acanthopoma*, *E. melanosoma*, and *E. fusca* with a mean pairwise divergence of 14%, 11%, and 9.9%, respectively. It shares with *E. fusca*, its sister species, the same combination of cephalic free neuromast patterns (i.e., second, fourth, and sixth suborbital free neuromast rows on cheek extending ventrally past horizontal row d (2.4.6 pattern) and row os connecting with row oi at ventroposterior margin of opercle, but it differs by a combination of characters including scales in lateral series 42–46 versus 53–67, transverse back series 11–13 versus 13–21, and zigzag series 9–11 versus 12–17.

There have been limited collections of freshwater organisms in the Solomon Islands. The earliest mention of ichthyofaunal surveys in the Solomon Islands is Macleay (1879) followed by Herre (1931), but their primary taxonomic emphasis was on marine ichthyofauna. Since that time there has been sporadic mention of freshwater fishes in the Solomon Islands, mostly in the form of taxonomic literature. Gray (1974) published a brief account including 36, mainly brackish-water, fish species. In the past decade, a few surveys for freshwater fishes have been conducted in the Solomon Islands by Boseto, Morrison, et al. (2007), Jenkins and Boseto (2007), Polhemus et al. (2008), Boseto and Sirikolo (2010), and Boseto, Sirikolo, and Bosetoa (2010). Clearly there is scope for more comprehensive collections.

As part of a CEPF (Critical Ecosystem Partnership Fund) project held by the French Ichthyological Society, two field trips were organized on Choiseul Island, at a high-priority site, the Kolombongara watershed, including the Sirebe Rainforest and Biodiversity Conservation Area (SRBCA) and Vuri Rainforest and Biodiversity Conservation Area (VRBCA), during 3 weeks in October 2014 and November 2015, and on Kolombangara Island in November 2015. During these surveys *Eleotris* specimens were collected and first identified with a determination key specializing in Indo-Pacific insular freshwater fishes (Keith et al. 2010, 2013). Three species common in the Pacific were caught: *Eleotris fusca* (Bloch & Schneider, 1801), *E. acanthopoma* (Bleeker, 1853), and *E. melanosoma* (Bleeker, 1852); and an unknown species. Indeed, we noticed that some specimens with the cephalic free neuromast pattern of *E. fusca* presented a particular mor-

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phology. Because of these observations, we studied the *Eleotris* species found using morpho-meristic and genetic analysis based on the mitochondrial *COI* gene. The purpose of this paper is to provide a description of the new species.

MATERIALS AND METHODS

Material Examined

During the three field trips, 142 *Eleotris* were sampled in Solomon Islands rivers using a DEKA 3000 electrofishing system (Gerätebau, Marsberg, Germany): 119 *E. fusca*, 8 *E. acanthopoma*, 4 *E. melanosoma*, and 11 belonging to the new species. The data from Solomon Islands were compared with data of other *Eleotris* specimens caught in the rivers of other Pacific islands, including type specimens, and deposited in museum collections (see Comparison in Results and Discussion).

DNA Analyses

A total of 26 *Eleotris* tissue samples collected in the Pacific Ocean [Solomon Islands, Polynesia (Moorea, Rarotonga), Philippines, Vanuatu, Palau, Papua, Micronesia, Samoa, and New Caledonia] and held in the Muséum national d'Histoire Naturelle (MNHN) (Table 1) were used for genetic analyses. For DNA extraction we used Macherey & Nagel NucleoSpin Tissue kits following the manufacturer's instructions on an Eppendorf EpMotion 5075. A mitochondrial fragment of the *COI* gene [585 base pairs (bp)] was amplified using the specific fish primers TelF1 5′TCGACTAATCAYAAAGAYATYGGCAC3′ and TelR1 5′ACTTCTGGGTGNCCAAARAATCARAA3′ (Dettai et al. 2011). DNA amplification was performed by PCR in a final 20 µl volume containing 5% DMSO, 1 µl of dNTP 6.6 µM, 0.15 µl of Qiagen Taq DNA polymerase, using 2 µl of the buffer provided by the manufacturer, and 0.4 µl of each of the two primers at 10 pM; 1.2 µl of DNA extract was added. After denaturation for 2 min at 94°C, the PCR was run for 55 cycles of (25 sec, 94°C; 25 sec, 54°C; 55 sec, 72°C) on a Bio-Rad C1000 Touch Thermal Cycler. Successful PCRs were selected on ethidium-bromide stained agarose gels. Sanger sequencing was performed in both directions by a commercial company (Eurofins) (http://www.eurofins.fr) using the same primers. For the outgroup, we included a sequence of *Hypseleotris agilis* (JN021219) from GenBank.

Data processing and sequence assembly were done in Geneious 9.0.5. All the *COI* sequences were aligned with Muscle Alignment. The phylogenetic analysis was performed using Bayesian inference (MrBayes 3.2) (Ronquist et al. 2012) with the model HKY + G computed by jModelTest 2.1.1 (Guindon and Gascuel 2003, Darriba et al. 2012). Four independent analyses were run for 10 million generations, sampling every 200 generations. Ten percent of the trees were discarded as burn-in, after having checked that it was sufficient for convergence. After checking convergence had been reached, the trees and parameters resulting from the four analyses were pooled and combined in a consensus. Intra- and interspecific distances (*p*-distances) were obtained with the Muscle algorithm in Geneious.

Morpho-Meristic Study

Methods follow Keith et al. (2012). Measurements of specimens were taken with a dial calliper to the nearest tenth of a millimeter. All counts were taken from the right side. The size is given as standard length (SL). Abbreviations for institutions and collections cited follow http://www.asih.org/resources/standard-symbolic-codes-institutional-resource-collections-herpetology-ichthyology.

Scale and fin ray counts are reported as: A, anal fin elements (includes flexible spine and segmented rays); D, dorsal fins (D1, first dorsal fin spines; D2, second dorsal fin elements); P, pectoral fin rays; C, caudal fin rays (only branched rays are reported); LS, scales in lateral series counted from upper pectoral fin base, or anteriormost scale along lateral midline, to central hypural base; PD, predorsal midline scales counted from scale directly anterior to first dorsal fin insertion to the anteriormost scale; TRB, transverse series backward, refers to scales counted from the

TABLE 1

Details of Tissue Samples of *Eleotris* Specimens Used in This Study

Countries	Islands	*E. bosetoi*, n. sp.	*E. fusca*	*E. acanthopoma*	*E. melanosoma*
Society Islands	Moorea		MNHN 2016-0024 (1)	MNHN 2016-0025 (1)	MNHN 2016-0029 (1)
Cook Islands	Rarotonga			MNHN 2016-0026 (1)	
Vanuatu	Maewo			MNHN 2016-0027 (1)	
	Epi		MNHN 2015-0378 (1)		
New Caledonia	Grande Terre		MNHN 2015-0364 (1)		
Samoa	Upolu				
		MNHN 2015-0380 (1)			
Solomon Islands	Choiseul	MNHN 2015-0379 (1)	MNHN 2015-0370 (1)		
		MNHN 2015-0381 (1)			
		MNHN 2015-0382 (1)			MNHN 2016-0030 (1)
	Kolombangara	MNHN 2016-0001 (1)		MNHN 2016-0028 (3)	MNHN 2016-0031 (1)
		MNHN 2015-0002 (1)			MNHN 2016-0032 (1)
		MNHN 2016-0003 (1)			MNHN 2016-0033 (1)
Indonesia	Papua		MNHN 2015-0377 (1)		
Caroline Islands	Palau		MNHN 2015-0368 (1)		
Micronesia	Pohnpei		MNHN 2015-0369 (1)		
Total		$N = 7$	$N = 8$	$N = 6$	$N = 5$

first scale anterior to second dorsal fin origin, in a diagonal manner, posteriorly and ventrally to the anal fin base or ventralmost scale; TRF, transverse series forward, refers to scales counted from the first scale anterior to second dorsal fin origin, in a diagonal manner, anteriorly and ventrally to the center of abdomen or ventralmost scale; ZZ, zigzag series, refers to scales on the narrowest region of the caudal peduncle counted from the dorsalmost scale to the ventralmost scale in a zigzag (alternating) manner.

Eleotris species are distinguished mainly by the superficial neuromast patterns of the head (Akihito 1967). Cephalic neuromast distribution patterns and urogenital papilla anatomy were examined and illustrated with the aid of a dissecting microscope and camera lucida. Cephalic neuromast patterns are described using terminology developed by Sanzo (1911) with modifications employed by Miller and Wongrat (1991) and Pezold and Cage (2001). Transverse opercular rows are labeled ot. Upper and lower longitudinal rows on the operculum are labeled os and oi, respectively. Transverse suborbital rows are designated with Arabic numbers and major horizontal rows on the cheek are indicated with the letters b and d.

To simplify references to the particular transverse suborbital rows crossing row d, a formula of row numbers separated by periods is used (see Pezold and Cage 2001). For example, if rows 2, 4, and 6 cross row d, this condition is represented by the formula "2.4.6."

The main cephalic neuromast pattern of the three most common *Eleotris* in the Pacific are shown with schematic drawings in Figure 1. For this figure, we used a syntype of *E. melanosoma* (RMNH 4815), the holotype of *E. acanthopoma* (RMNH 25934), and for *E. fusca* (because there is no type known), we used a syntype of *E. niger* (MNHN A-1578), a synonym of *E. fusca*.

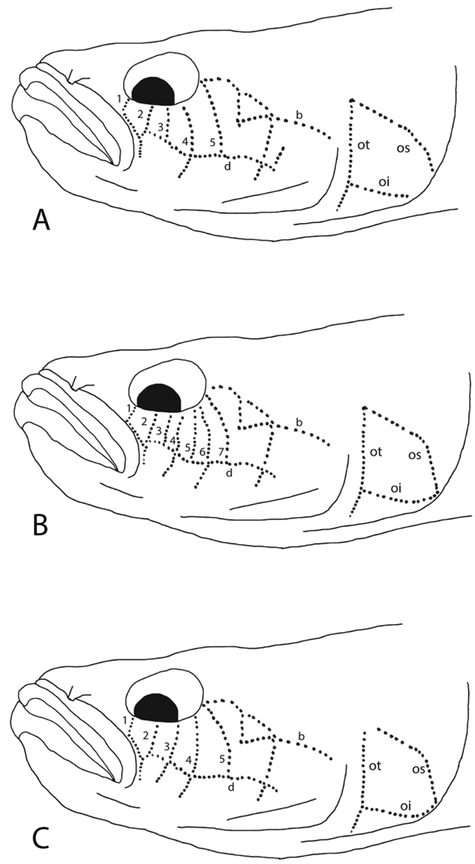

FIGURE 1. Schematic illustrations showing main cephalic free neuromast pattern of (*A*) *Eleotris acanthopoma* (holotype: RMNH 25934); (*B*) *Eleotris niger* (syntype: MNHN A-1578) (synonym of *E. fusca*) and *Eleotris bosetoi*, n. sp. (holotype: MNHN 2015-0382); (*C*) *Eleotris melanosoma* (syntype: RMNH 4815).

RESULTS AND DISCUSSION

Genetic Results

The phylogenetic tree based on the *COI* gene (585 bp), among the *Eleotris* sampled in rivers of Pacific islands, supported species-level differentiation (Figure 2). Clade A with *E. acanthopoma* is separated, with a 14% mean pairwise divergence, from clade B that included the three congeneric species, *E. melanosoma* (B_1), *Eleotris* (n. sp.) (B_2) and *E. fusca* (B_3). *Eleotris melanosoma* (B_1) is separated with an 11% mean pairwise divergence from *Eleotris* (n. sp.) and *E. fusca* (B_2 and B_3, respectively), and these two last sister species are separated from each other by a mean pairwise divergence of 9.9%.

The genetic analysis revealed a species distinct from *E. fusca*, *E. acanthopoma*, and

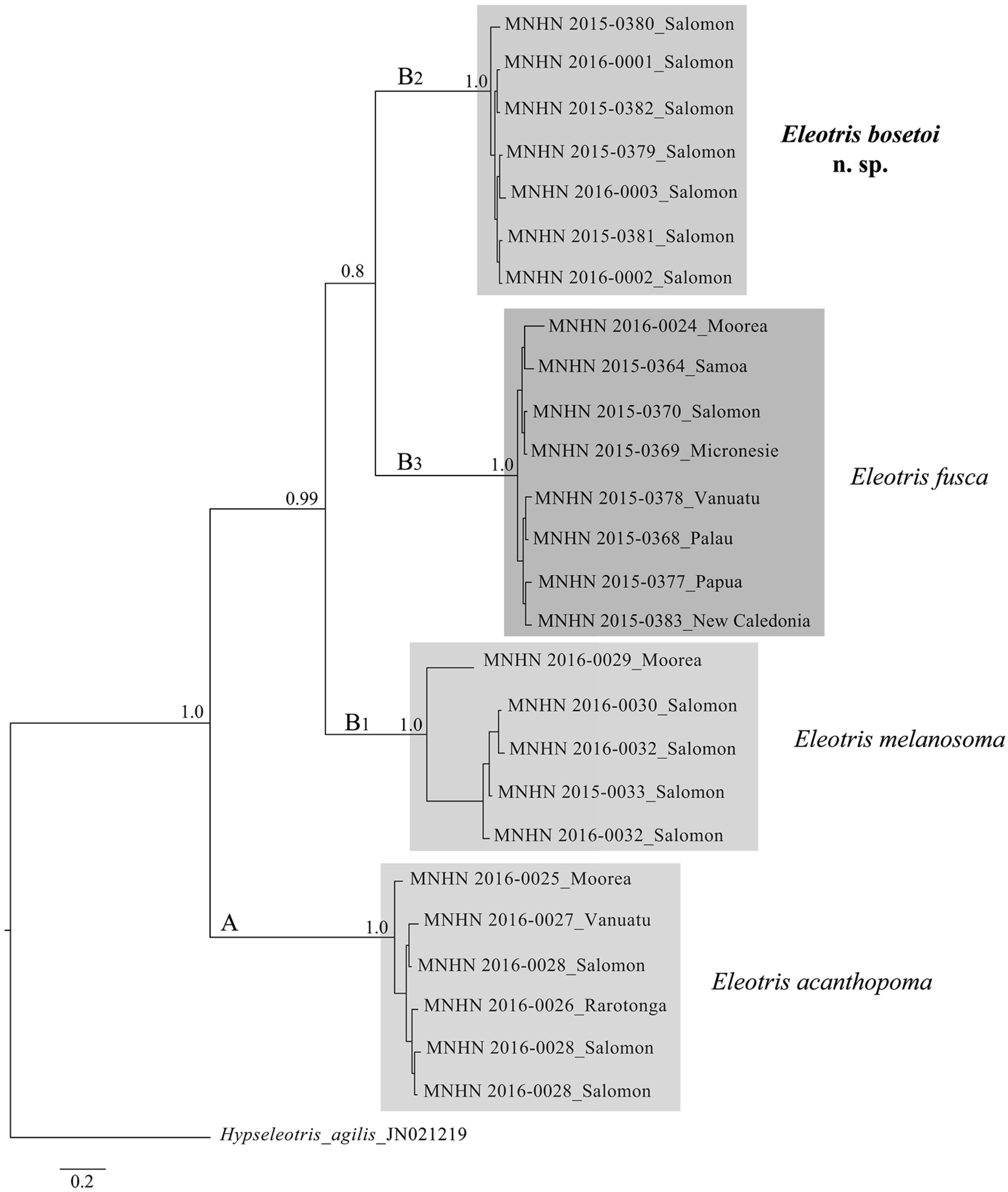

FIGURE 2. Bayesian tree of the cytochrome c oxidase subunit (*COI*) for sequenced specimens of *Eleotris*. Numbers on nodes represent posterior probabilities. The four *Eleotris* species are highlighted with boxes.

Figure 3. *Eleotris bosetoi*, n. sp., mnhn 2015-0382 (live specimen, in aquarium), female, 101.6 mm SL, Zamba River, Kolombangara Island, Solomon Islands, 10 November 2015; P. Keith, C. Lord, D. Boseto, and G. Marquet coll. (Photo: P. Keith.)

E. melanosoma. This species is described here.

Description of the New Species

Because the sister species of the new species of *Eleotris* is *E. fusca*, and both share the same cephalic neuromast pattern, they are compared in the text and tables.

Eleotris bosetoi Mennesson, Keith, Ebner & Gerbeaux, **n. sp.**
Figures 1–4, Tables 2–3

material examined: Four males and three females collected from Choiseul and Kolombangara Islands (Solomon Islands) with a size range of 15.3–101.6 mm SL.

type material: Holotype: mnhn 2015-0382, female, 101.6 mm SL, Zamba River, Kolombangara Island, Solomon Islands, 10 November 2015; Keith, Lord, Boseto, and Marquet coll.; tag 13558 (Figure 3).

Paratypes: mnhn 2015-0380, female, 70 mm SL, Lokasereke River, Choiseul Island, Solomon Islands, 13 October 2014; Keith, Marquet, Gerbeaux, Boseto, and Ebner coll.; tag 13529. mnhn 2015-0379, female, 77.6 mm SL, Pisuku River, Choiseul Island, Solomon Islands, 10 October 2014; Keith, Marquet, Gerbeaux, Boseto, and Ebner coll.; tag 13528. mnhn 2015-0381, male, 24 mm SL, Pisuku River, Choiseul Island, Solomon Islands, 12 October 2014; Keith, Marquet, Gerbeaux, Boseto, and Ebner coll.; tag L-214. mnhn 2016-0001, male, 49.4 mm SL, Vanga River, Kolombangara Island, Solomon Islands, 18 November 2015; Keith, Lord, Boseto, and Marquet coll.; tag 12491. mnhn 2016-0002, male, 23.5 mm SL, same data as holotype, tag L-269. mnhn 2016-0003, juvenile, 15.3 mm SL, Liva River, Kolombangara Island, Solomon Islands, 11 November 2015; Keith, Lord, Boseto, and Marquet coll.; tag L-230.

diagnosis: The new species is distinguished by second, fourth, and sixth suborbital free neuromast rows on cheek extending ventrally past horizontal row d (2.4.6 pattern); row os connecting with row oi at ventroposterior margin of opercle (Figure 4); scales in lateral series 43–46, in zigzag series 9–11, and 12–13 in transverse back series (Table 2).

description: Scale counts in *Eleotris bosetoi*, n. sp., and *E. fusca* are given in Table 2, and morphometric data in Table 3. Holotype counts are given first, followed in parentheses, if different, by paratype counts.

Body low and torpedolike. Head broad and depressed. Dorsal fins VI-I,8; D1 separate from D2 and twice smaller; spines not elongate. D2 rounded; length between 19% and

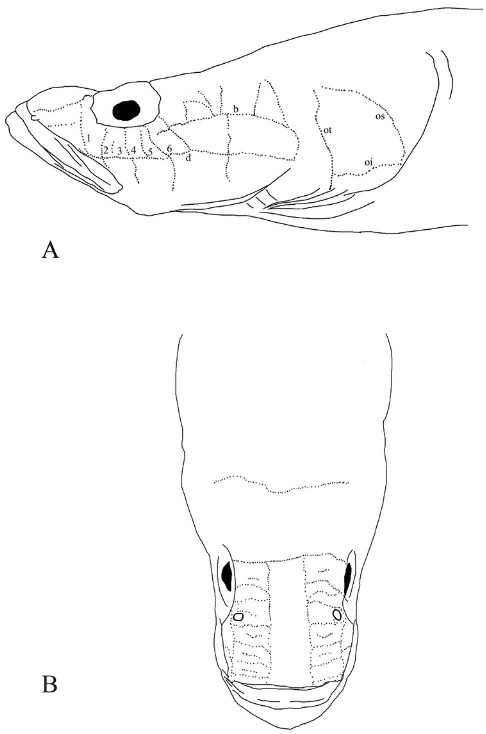

Figure 4. Cephalic free neuromast pattern of *Eleotris bosetoi*, n. sp. (mnhn 2015-0380), in lateral (*A*) and dorsal (*B*) views.

29% of the SL. Anal fin I,8, oval, and directly opposite second dorsal fin. Appressed median fins not reaching caudal-fin base. Pelvic fins separate, I,5, not reaching anus; length between 12% and 24% of the SL. Pectoral fins 16–17, oblong, and longer than pelvic fins, reaching to vertical through urogenital base; length between 20% and 31% of the SL. Caudal fin rounded with 15 branched rays; length between 22% and 32% of the SL.

A downward-pointing spine at the posterior margin of the preoperculum is covered with skin. Gill opening is moderately broad, extending to below the preoperculum. Gill rakers on outer surface of the first arch 2–3+2–3+7–8. Snout pointed. Tubular anterior nares overhanging half upper lip at front of snout; posterior nares open pits, placed behind, near the eye. Eyes high on head. Mouth large and oblique, posterior margin of upper jaw reaches the vertical through the first 1/3 of eye. Upper and lower jaws with multiple (12–14) rows of small, blunt teeth; a few caniniform teeth in posterior position. Largest specimen with a humped profile on nape.

Cephalic lateralis: Adults with seven transverse suborbital free neuromast rows, of which second, fourth, and sixth suborbital free neuromast rows on cheek extend ventrally past horizontal row d (2.4.6 pattern); row os connecting with row oi at ventroposterior margin of opercle, and many short supernumerary segments often present between transverse rows (Figure 4).

Cycloid scales on top of head, nape, cheek, opercle, pectoral-fin base, prepelvic region, and abdomen. Ctenoid scales covering flanks. No lateral line canals. 46 (42–46) scales in lateral series, 40 (30–45) in predorsal series, 13 (11–13) in transverse back series, 21 (15–21) in transverse forward series, and 11 (9–11) in zigzag series.

Urogenital papilla in females rounded and flattened; elongated in males.

color in life: Male and female similar. Head and body dark brown or black. Abdomen and gular region pale brown to whitish near cheek. First dorsal fin with 2–3 large dark bands alternating with 3 thin white lines. Second dorsal, anal, and pelvic fins with 5–6 brownish wavy spotted rows. Caudal fin dark brown to brown, primarily without spots anteriorly, increasing white speckling posteriorly and with a distal white trailing edge. Pectoral fins predominantly brown with sparse white spotting (Figure 3).

color in preservation: Head, preoperculum, and body dark brown or grayish. Abdomen and gular region grayish to yellowish. First dorsal fin with 2–3 large dark bands alternating with 2–3 small white ones. Anal and second dorsal fins with 4–5 brownish wavy spotted rows. Caudal fin black to dark gray, primarily without spots anteriorly, increasing white speckling posteriorly and with a distal white trailing edge. Pectoral fins slightly spotted. Pelvic fins dusky.

comparison: *Eleotris bosetoi*, n. sp., differs from *E. acanthopoma* in cephalic neuromast pattern in having 2.4.6 pattern versus 2.4. Opercular row patterns also differ; oi and os are connected in the new species, unlike in

TABLE 2

Scale Counts in *Eleotris bosetoi*, n. sp., and *E. fusca* (Methods Follow Keith et al. 2012)

Lateral Series

Compared Taxa		42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67
Eleotris fusca	Male												1	—	1	3	2	1	—	—	—	1	—	—	—	—	2
Eleotris fusca	Female												1	—	—	—	—	—	1	2	—	2	1	2			
Eleotris bosetoi	Male	1	1	1	—	1																					
Eleotris bosetoi	Female				1	2																					

Predorsal Series

Compared Taxa		29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Eleotris fusca	Male						1	—	—	1	—	—	2	1	—	1	—	—	—	1							
Eleotris fusca	Female		1	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	1
Eleotris bosetoi	Male	1	1	1																							
Eleotris bosetoi	Female									1	—	—	1	—	—	—	—	1									

Transverse Back Series

Compared Taxa		11	12	13	14	15	16	17	18	19	20	21	22
Eleotris fusca	Male					3	2	5	2				
Eleotris fusca	Female			1	—	—	—	3	—	3	1	1	
Eleotris bosetoi	Male	1	2	1									
Eleotris bosetoi	Female		2	1									

Transverse Forward Series

Compared Taxa		13	14	15	16	17	18	19	20	21	22	23	24	25
Eleotris fusca	Male	1	2	—	1	—	1	2	—	2	1			
Eleotris fusca	Female	1	—	1	1	2	—	—	1	—	—	1	1	1
Eleotris bosetoi	Male	1	—	—	—	1	—	1	1					
Eleotris bosetoi	Female			1	—	1	—	—	—	1				

Zigzag Series

Compared Taxa		9	10	11	12	13	14	15	16	17
Eleotris fusca	Male				2	—	3	3	1	1
Eleotris fusca	Female				2	—	3	3	1	
Eleotris bosetoi	Male	1	3							
Eleotris bosetoi	Female	1	—	2						

E. acanthopoma (Figures 1*A*, 4). The new species has the same opercular row patterns as *E. melanosoma*, but they have a different cephalic neuromast pattern, 2.4.6 versus 2.3.4 (Figure 1*C*, 4). *E. bosetoi*, n. sp., differs from *E. fusca* in having 42–46 scales in lateral series versus 53–67, in zigzag series 9–11 versus 12–17, and in transverse back series 11–13 versus 13–21 (Table 2).

DISTRIBUTION: Currently known only from the Solomon Islands.

ECOLOGY: *Eleotris bosetoi*, n. sp., was found in muddy to clear rivers with sandy to gravel bottom between 5 and 15 m in altitude (this study). It is a carnivorous species that feeds on crustaceans and fishes [seen with X-ray and stomach contents (M.I.M.)]. It was found in sympatry with *E. fusca* and *E. acanthopoma*.

ETYMOLOGY: The name of the species honors our friend David Boseto for his extensive and enthusiastic work on the freshwater fauna of the Solomon Islands.

COMPARATIVE MATERIAL:

Eleotris fusca (Bloch & Schneider, 1801): As *Eleotris niger* Quoy & Gaimard, 1824: MNHN A-1578, syntype, 1 male (89 mm SL), Waigeo, Indonesia. As *Eleotris vitianus* Sauvage, 1880: MNHN A-1420, syntypes (2 from 4), 2 males (93.3–118 mm SL), Fiji Islands.

MNHN 2015-0364, 1 male, 1 female (78.2–95.4 mm SL), Samoa, Upolu, 25/7/2008, Keith et al. coll; tags 16023, 16024. MNHN 2015-0365, 2 males, 1 female (45.2–58.2 mm SL), Bali, Tukad Unda, Indonesia, 22/4/2014, Keith et al. coll; tags 12443, 12446, 12447. MNHN 2015-0366, 1 female (58.4 mm SL), Ua Uka, Marquesas, 24/2/2009, Pascal et al. coll; tag 16087. MNHN 2015-0367, 1 male (52.8 mm SL), Kumafa, Papua, 15/10/2010, Keith et al. coll; tag 16015. MNHN 2015-0368, 1 male (32.7 mm SL), Tireloach, Palau, 28/2/2011, Keith et al. coll; tag 16017. MNHN 2015-0369, 1 male (32.7 mm SL), Pohnpei, 14/3/2012, Keith et al. coll; tag 16019. MNHN 2015-0370, 1 male (64.8 mm SL), Lokapava, Choiseul, Solomon Islands, 21/10/2014, Keith et al. coll; tag 13531. MNHN 2015-0371, 1 female (33.8 mm SL), Maewo, Vanuatu, 12/11/2007, Keith et al. coll; tag 16124. MNHN 2015-0372, 1 female (47.3 mm SL), Moorea, French Polynesia, 06/2007, Sasal et al. coll; tag 16097. MNHN 2015-0373, 1 female (55.7 mm SL), Rurutu, French Polynesia, 06/2001, Keith et al. coll; tag 16094. MNHN 2015-0374, 1 female (62 mm SL), Tubuai, French Polynesia, 07/2007, Sasal et al. coll; tag 16086. MNHN 2015-0375, 1 male (71 mm SL), Alegre, Philippines, 5/2/2014, Gaulke et al. coll; tag 12450. MNHN 2015-0376, 1 female (42.6 mm SL), Samoa, Upolu, Palilua Riv., 24/7/2008, Keith et al. coll; tag 16020. MNHN 2015-0377, 1 male (47 mm SL), Papua, 26/10/2008, Keith et al. coll; tag 16018. MNHN 2015-0378, 1 female (42.6 mm SL), Vanuatu, Epi, Buavinai, 27/11/2014, Mennesson et al. coll; tag 13526. MNHN 2015-0383, juvenile (21.45 mm SL), New Caledonia, Wan Pwé On, 02/02/2013, Taillebois et al. coll; tag L-207. MNHN 2016-0024, 1 male (71.1 mm SL), Moorea, French Polynesia, 07/2007, Sasal et al. coll; tag 11777.

Eleotris melanosoma (Bleeker, 1852): RMNH 4815, syntype, 1 male (62.4 mm SL), Wahai, Sumatra, Indonesia. MNHN 2016-0029, larva (11.4 mm SL), Moorea, Opunohu Riv., French Polynesia, 11/2009, Sasal et al. coll; tag L-106. MNHN 2016-0030, 1 male (49.9 mm SL), Vage Riv., Kolombangara, Solomon Islands, 10/11/2015, Keith et al. coll; tag 12397. MNHN 2016-0031, 1 male (52.9 mm SL), Vanga Riv., Kolombangara, Solomon Islands, 1/11/2015, Keith et al. coll; tag 12487. MNHN 2016-0032, juvenile (32.8 mm SL), Zamba Riv., Kolombangara, Solomon Islands, 10/11/2015, Keith et al. coll; tag L-229. MNHN 2016-0033, juvenile (14.7 mm SL), Jack Harbour, Liva Riv., Kolombangara, Solomon Islands, 11/11/2015, Keith et al. coll; tag L-273.

Eleotris acanthopoma (Bleeker, 1853): RMNH 25934, holotype, 1 male (85.7 mm SL), Sumatra, Indonesia. MNHN 2016-0025, 1 male (48.9 mm SL), Moorea, French Polynesia, 06/2007, Salsa et al. coll; tag 16098. MNHN 2016-0026, 1 male (44.9 mm SL), Rarotonga, 07/2010, Keith et al. coll; tag 16005. MNHN 2016-0027, 1 male (47.8 mm SL), Gaua, Kaska Riv., Vanuatu, 05/11/2014, Mennesson et al. coll; tag 13546. MNHN 2016-0028, 3 juveniles (24.6, 19.3, 24.2 mm SL), Vanga Riv., Kolombangara, Solomon Islands, 18/11/2015, Keith et al. coll; tag L-247, L-248, L-252.

TABLE 3

Morphometric Values for *Eleotris bosetoi*, n. sp., and *E. fusca* Expressed to the Nearest Whole Percentage of Standard Length (Methods Follow Keith et al. 2012)

		Second Dorsal Length															
Compared Taxa		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Eleotris fusca	Male				1	—	—	1	1	1	—	1	4	1	—	—	1
Eleotris fusca	Female		1	1	—	—	1	2	—	2	1	—	1				
Eleotris bosetoi	Male	1	—	1	—	2											
Eleotris bosetoi	Female							2	—	—	—	1					

		Anal Fin Length							
Compared Taxa		23	24	25	26	27	28	29	30
Eleotris fusca	Male		1	1	1	1	1	4	1
Eleotris fusca	Female	1	3	2	1	—	2		
Eleotris bosetoi	Male	2	1	1					
Eleotris bosetoi	Female	1	—	—	1	—	—	1	

		Caudal Fin Length																	
Compared Taxa		22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Eleotris fusca	Male			1	—	—	1	—	—	—	2	4	2						
Eleotris fusca	Female			—	—	1	1	—	1	1	1	—	1	1	1	—	—	—	1
Eleotris bosetoi	Male	1	1	—	—	—	—	1											
Eleotris bosetoi	Female									2	—	1							

		Pectoral Fin Length											
Compared Taxa		20	21	22	23	24	25	26	27	28	29	30	31
Eleotris fusca	Male				1	3	1	2					
Eleotris fusca	Female			1	2	2	1	—	1	2			
Eleotris bosetoi	Male		1	1	—	1	—	—	—	—	—	—	1
Eleotris bosetoi	Female	1	—	—	—	1	—	1					

		Pelvic Fin Length												
Compared Taxa		12	13	14	15	16	17	18	19	20	21	22	23	24
Eleotris fusca	Male						1	2	2	3	—	1		
Eleotris fusca	Female				1	—	3	1	1	3	1			
Eleotris bosetoi	Male	1	—	—	—	1	—	—	1	—	—	1		
Eleotris bosetoi	Female							2	—	—	—	—	—	1

		Jaw Length								
Compared Taxa		6	7	8	9	10	11	12	13	14
Eleotris fusca	Male						4	4	2	
Eleotris fusca	Female	1	—	—	1	2	3	2		
Eleotris bosetoi	Male				1	—	3			
Eleotris bosetoi	Female						2	1		

TABLE 3 (continued)

Compared Taxa		Caudal Peduncle Depth						
		11	12	13	14	15	16	17
Eleotris fusca	Male	1	1	—	1	4	2	1
Eleotris fusca	Female		1	2	5	1		
Eleotris bosetoi	Male	1	3	—				
Eleotris bosetoi	Female		2	1				

Compared Taxa		Body Depth at Second Dorsal Fin Origin in Males									
		15	16	17	18	19	20	21	22	23	24
Eleotris fusca	Male			1	1	—	2	3	1	—	1
Eleotris bosetoi	Male	3	—	1							

Compared Taxa		Head Length										
		27	28	29	30	31	32	33	34	35	36	37
Eleotris fusca	Male					1	1	3	4	1		
Eleotris fusca	Female					1	2	2	1	1	1	1
Eleotris bosetoi	Male	1					1	1	—	—	—	1
Eleotris bosetoi	Female								1	—	1	1

Compared Taxa		Predorsal Length										
		41	42	43	44	45	46	47	48	49	50	51
Eleotris fusca	Male				1	1	—	5	1	2		
Eleotris fusca	Female	1	—	2	1	2	1	—	—	2		
Eleotris bosetoi	Male						3	—	—	1		
Eleotris bosetoi	Female						2	—	—	—	—	1

Compared Taxa		Preanal Length													
		59	60	61	62	63	64	65	66	67	68	69	70	71	72
Eleotris fusca	Male					1	1	3	2	—	1	—	1	1	1
Eleotris fusca	Female			1	—	—	1	2	1	—	—	1	2		
Eleotris bosetoi	Male	1	—	—	1	—	—	—	—	—	1	—	1		
Eleotris bosetoi	Female									1	2				

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