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Owstonia aurora (Perciformes: Cepolidae: Owstoniinae), a new bandfish from the Philippines

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Abstract

Owstonia aurora **sp. nov.** is described on the base of three specimens (69.8–88.0 mm in standard length) collected off East Luzon during the "Aurora 2007" Philippine Expedition. The new species differs from its congeners by the following combination of characters: dorsal-fin elements III, 21; anal-fin elements I, 14; gill rakers on first arch 35–38; cheek with 80–86 scales in 7–8 rows; lateral line without branch, not forming loop in front of dorsal-fin, ending below 17th to 22th dorsal-fin soft rays; oblique body scale rows in mid-lateral series 54–58; lower margin of preopercle rounded; prominent black blotch on anterior dorsal-fin membrane, and extend downward to dorsal-fin base, remaining membrane of dorsal, anal, and caudal fins red with white margins and bases, distinct white stripes on mid dorsal and caudal fin membranes; membranes between maxillary and premaxillary with discontinuous black stripes or patches.

Key words: Actinopterygii, biodiversity, deep sea, Census of Marine Life

Introduction

The genus *Owstonia* Tanaka, 1908 belong to the subfamily Owstoniinae in the family Cepolidae with 38 nominal species currently recognized as valid (Smith-Vaniz & Johnson 2016). Other nominal genera including *Sphenanthias* Weber, 1913, *Parasphenanthias* Gilchrist, 1922, *Loxopseudochromis* Fowler, 1934, *Opsipseudochromis* Fowler, 1934, and *Pseudocepola* Kamohara, 1935 were synonymized with *Owstonia* (Prokofiev 2010; Endo *et al.* 2015; Smith-Vaniz & Johnson 2016), but some authors recognized two genera as valid in this subfamily i.e., *Owstonia* and *Sphenanthias* (Smith 1968; Smith-Vaniz 2001; Liao *et al*. 2009).

The distinct difference between these two genera is that in *Owstonia* the lateral lines on the sides of the body join as a loop in front of the dorsal fin, whereas in *Sphenanthias*, the lateral lines are separate and do not form a loop (Smith-Vaniz 2001). However, the lateral line pattern in *Sphenanthias* was a plesiomorphic character in most teleost, and *Owstonia* has considered as the only genus of Owstoniinae and *Owstonia* has been proposed as a monophyletic group (Smith-Vaniz 1986; Mok 1988; Prokofiev 2010; Endo *et al.* 2015; Smith-Vaniz & Johnson 2016). In addition, lateral-line patterns are variable and important characters in *Owstonia*. There are four patterns: type 1 pattern is the plesiomorphic characteristics of most teleost, its lateral-line on each side arises from the posttemporal sensory canal above the anterodorsal margin of the gill opening, curves upward and then continues posteriorly along the base of dorsal-fin; type 2 pattern has a vertical branch of the lateral line arising from the posttemporal sensory canal above the anterodorsal margin of the gill opening, and each side not connecting into a loop in front of dorsal-fin; type 3 pattern, its lateral line connecting into a loop in front of dorsal-fin; type 4 pattern is similar to type 3 having a loop lateral line in front of dorsal-fin, but has a pair of secondary side loops near the front of the primary loop (Smith-Vanis & Johnson 2016). Smith-Vaniz & Johnson (2016) listed 15 valid species and described 21 new species of *Owstonia*, provided an insight of underestimated and hidden species diversity of *Owstonia* and mentioned difficulties in collection and special habitat preferences for holes or crevices on rocky deeper bottom.

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The new species was collected during the Aurora Expedition off east Luzon, Philippines in 2007, under the flag of the Census of Marine Life, Census of Philippines Deep-Sea Biodiversity (Crist *et al*. 2009). This was a global network of researchers in more than 80 nations engaged in a 10-year scientific initiative to assess and explain the diversity, distribution, and abundance of life in the oceans. The new species was named and described; color photographs, X-radiograph, and character counts and comparisons for congeners species were provided in this study.

Materials and methods

Specimens were collected during the Aurora 2007 Philippines Expedition. The trawls including the 4.2-meter-wide French type beam trawl and the 12.4-meter head line otter trawl were conducted and operated by the M/V DA-BFAR Research Vessel, a 60 m, 1,156 gross tons research vessel of the Bureau of Fisheries and Aquatic Resources, Department of Agriculture. Photos were taken in fresh and tissue samples were collected and fixed in absolute ethanol. Voucher specimens were fixed in 10% formalin and then transferred to 70% ethanol for long-term preservation. Type specimens were deposited in the Biodiversity Research Museum, Biodiversity Research Center, Academia Sinica, Taiwan (ASIZP). Institutional abbreviations after Sabaj (2020) are as follows: Australia Museum, Sydney (AMS); Academy of Natural Sciences of Drexel University, Philadelphia (ANSP); Laboratory of Marine Biology, Faculty of Science, Kochi University, Kochi, Japan (BSKU); Department of Bioresource Science, Faculty of Agriculture, Kyoto University, Japan (FAKU); Field Museum of Natural History, Chicago, Illinois (FMNH); National Museum of Natural and Science, Zoology Department, Division of Fishes, Tsukuba, Japan (NSMT-P); National Museum of the Philippines (PNM); South African Institute of Aquatic Biodiversity, Grahamstown, South Africa (SAIAB); National Museum of Natural History, Washington, D.C. (USNM); Zoological Museum Amsterdam, Netherlands (ZMA).

Counts and measurements follow Nakabo (2002) and after Smith-Vaniz & Johnson (2016): e.g., lateral-line type 1 pattern, that the lateral line on each side arises from the posttemporal sensory canal just above the anterior dorsal margin of the gill opening, curve upward and then continues posteriorly along the base of dorsal-fin; the lateral line terminus refers to the base of the posterior dorsal-fin soft ray below which the lateral line ends; oblique body scale rows in mid-lateral series, scales counted along a horizontal line from the posterior margin of the opercle to the structural base of the caudal-fin.

Vertebrae and anal-fin pterygiophores anterior to 1st haemal spine were counted using X-radiograph; scales were counted after Alizarin Red stained. Abbreviations used in this paper are as follows: SL, standard length; TL, total length; HL, head length. Measurements if mentioned were denoted in mm.

Owstonia aurora sp. nov.

(Figs. 1, 2A–C; Tables 1–2)

[New English name: Aurora's Bandfish]

Holotype. ASIZP0068194, 74.9 mm SL, 101.7 mm TL, immature male; 1 Jun. 2007, CP 2736-001, Aurora, East Luzon, Philippines, 16.02°N, 121.88°E, 344–347 m depth, French-type beam trawl, coll. MV DA-BFAR.

Paratypes. ASIZP0067846, 69.8 mm SL, 93.6 mm TL, immature male, 20 May 2007, CP 2657-018, 16.01°N, 121.88°E, Aurora, East Luzon, Philippines, 342–358 m depth, French-type beam trawl, coll. MV DA-BFAR. ASIZP0068193, 88.0 mm SL. 118.0 mm TL, immature female, same as holotype.

Diagnosis. A species of *Owstonia* with the following combination of characters: dorsal-fin elements III, 21; anal-fin elements I, 14; gill rakers on first arch 35–38; cheek with 80–86 scales in 7–8 rows; lateral line without branch, not forming loop in front of dorsal fin, ending below 17th to 22th dorsal-fin soft rays; oblique body scales rows in mid-lateral series 54–58; lower margin of preopercles rounded; prominent black blotch on anterior dorsal-fin membrane, and extend downward to dorsal-fin base, remaining membrane of dorsal, anal, and caudal fins red with white margins and bases, distinct white stripes on mid dorsal and caudal fin membranes; membranes between maxillary and premaxillary with discontinuous black stripes or patches.

Description. Proportional measurements and counts are given in Table 1. Data of the holotype are presented first, followed by those of paratypes in parentheses, if different.

FIGURE 1. *Owstonia aurora*, holotype, ASIZP0068194, 74.9 mm SL, Aurora, off East Luzon, Philippines. Alizarin Red stained specimen photograph.

Single dorsal fin, dorsal-fin base length 1.6 (1.7) in SL; its origin behind the vertical line at posterior gill opening; anterior two dorsal-fin spines short than soft rays; dorsal-fin with three short spines and 21 branched soft rays. Anal-fin base 3.2 (3.8–4.2) in SL; anal-fin with one short spine and 14 branched soft rays; its base length 2.0 (2.3–2.5) in dorsal-fin base; longest anal-fin ray equal to longest dorsal-fin ray. Caudal-fin lanceolate; its length 2.8 (2.9) in SL; caudal-fin with 18 (17) branched soft rays and two or three unbranched soft rays. Pectoral-fin with 20–22 soft rays; pectoral-fin short and rounded, its length 5.1 (4.9–5.1) in SL. Pelvic-fin short, pull back not extending behind anus; pelvic-fin with one short spine and five branched soft rays. Gill rackers on first arch slender, longest one about 1.9 times longest gill filament, with fine spinules on rackers. Branchiostegal rays 6. Vertebrae:11 + 17=28; anal-fin pterygiophores anterior to 1st haemal spine two.

Head 2.8–2.9 times in SL; lower margin of preopercle rounded without spines or serrated. Cephalic lateral-line pores developed; 6 on supraorbital, 10 (9–10) on infraorbital, 6 on preopercular, and 6 on mandibular canals. Papillae in slight depression behind tip of premaxillary ascending processes 4, arranged in 2 pairs. Eye large, orbital diameter 2.5 (2.1–2.3) in head length; interorbital narrow, its width 2.8 (3.0–3.1) in orbital diameter. Snout short, its length 2.2 (1.9–2.3) in orbital length. Mouth large, oblique, posterior maxillary not extending to a vertical at posterior margin of orbit; upper jaw length 2.2 (2.1–2.3) in head length; maxilla width about two times in maxilla length. Teeth on jaws small, cylindrical, apical sharp, pike-like, curved inwardly, and arranged sparsely. Teeth in outer row of each premaxillary 14–15 (14–16), anterior 1st teeth small, 4–5 large teeth, 1–4 moderate teeth, and inner teeth absent; outer lateral row of each dentary with 13 (13–16) teeth, symphysis area with 3–5 large teeth, and inner with 1–2 small spik-like teeth; no teeth on vomer and palatine.

Body compressed and elongated; body depth 2.8 (2.8–3.5) in SL; its width 6.2 (5.4–6.7) in SL; caudal-peduncle depth 1.4 (1.2–1.5) in caudal-peduncle length. Predorsal length about equal to head length.

A species of *Owstonia* with lateral line pattern type 1 (Smith-Vanis & Johnson 2016), consisting a simple lateral line that originates from the posttemporal sensory canal near the anterodorsal margin of gill opening, curves upward to dorsal base and backward continues posteriorly below dorsal fin base to 17th to 22th soft ray.

Scales cycloid with crenulated margins; nape scaly and cheek covered with 70–86 scales arranged in 7–8 rows; predorsal scales 7–9; oblique body scale rows in mid-lateral series 54–58, with additional 4 scales on caudal-fin membrane; scale rows between lateral line and anal-fin base 19–22; lateral-line scales 9 + 22=31 (10 + 20=30, and 10 + 17 with several lost in paratypes), lateral line connect to dorsal-fin base at 1st to 2nd ray base.

Color when fresh: head, body red, belly white; iris golden-orange; dorsal-fin red with basal and outer margin white, prominent black blotch on anterior dorsal-fin membrane to base between 2nd spine to 6th soft ray in holotype and ASIZP0067846, but about 3rd spine to 5th soft ray in ASIZP0068193, the remaining dorsal-fin membranes with longitudinal white stripe after the black blotch; caudal-fin red with outer margin white and membranes with 3–4

prominent white blotches or stripes in holotype, but the white blotches connect into irregular stripes in paratypes; pectoral-fin membranes uniformly red; pelvic-fin red with outer margin white; prominent black band on membranes between maxillary and premaxillary absent, with discontinuous stripe or patches of melanophores, somewhat slightly pigmented on anterior and posterior portions of lower half of maxilla in holotype, but discontinuous and separated into about three patches in ASIZP0068193, whereas it is unclear or pale in ASIZP67846. Color in alcohol: all red color faded to uniformly pale; anterior dorsal-fin membrane with prominent black blotch extending to dorsal-fin base, between second spine to sixth ray of dorsal-fin (III–5th) rays; black band on membrane between maxillary and premaxillary absent, with discontinuous stripe or patched melanophores.

Sex. The male holotype and one pair paratypes are immature. Sexual dimorphism not occur in type materials.

Comparisons. As 28 congeners, the new species has the anterior lateral lines neither connected nor branched as the type 1 pattern in Smith-Vanis & Johnson (2016). It's a plesiomorphic character in most teleost, that the lateral line on each side arises from the posttemporal sensory canal just above the anterior dorsal margin of the gill opening, curves upward and then continue posteriorly just below the dorsal fin base (Smith-Vaniz 1986; Prokofiev 2010; Smith-Vaniz & Johnson 2016).

The prominent differences between the new species and the other congeners are as follows: lower margin of preopercle is rounded in *Owstonia aurora* rather than spiny or serrated as in *Owstonia dispar* Smith-Vaniz & Johnson, 2016, *Owstonia japonica* Kamohara, 1935, *Owstonia scottensis* Smith-Vaniz & Johnson, 2016, and *Owstonia nigromarginata* (Fourmanoir, 1985); oblique body scale rows of mid-lateral series are fewer than 60 rather than 95 or more as in *Owstonia lepiota* Smith-Vaniz & Johnson, 2016 and *Owstonia mundyi* Smith-Vaniz & Johnson, 2016; a prominent black blotch or pigmentations on anterior dorsal-fin membrane could exclude most other species except the following six species, i.e., *Owstonia psilos* Smith-Vaniz & Johnson, 2016, *Owstonia merensis* Smith-Vaniz & Johnson, 2016, *Owstonia crassa* Smith-Vaniz & Johnson, 2016, *Owstonia melanoptera* Smith-Vaniz & Johnson, 2016, *Owstonia similis* Smith-Vaniz & Johnson, 2016, and *Owstonia simotera* (Smith, 1968). These six species mentioned formerly are quite similar to *O. aurora* in sharing diagnosis, e.g., anterior dorsal-fin membrane has a prominent black blotch, dorsal-fin with three spines, membrane between maxillary and premaxillary with prominent black band (discontinuous black stripes or patches in *O. psilops* and *O. merensis*).

The six species mentioned above differ from the new species by the following characters (those of *O. aurora* in parentheses): posterior lateral line ended below 7th–8th soft dorsal-fin rays (vs. 17–22) in *O. melanoptera*, oblique body scale rows in mid-lateral 48–53 (vs. 54–58); 12–13 anal-fin rays in *O. crassa* (vs. 14), posterior lateral line ended at 14th–17th soft dorsal-fin rays (vs. 17–22); 6 cheek scale rows in *O. similis* (vs. 7–8), posterior lateral line ended at 16th soft dorsal-fin ray (vs. 17–22), less gill rakers 32–33 (vs. 35–38); *O. simotera* was known only from off Mozambique with an overlap counts of 7–10 cheek scale rows in original description (Smith 1968), whereas Smith-Vanis and Johnson (2016) redescribed with 11–12 cheek scale rows (vs. 7–8), lateral line ended at 15th–18th soft dorsal-fin rays (vs. 17–22) (Table 2), and teeth in lateral row of each dentary 8–10 (vs. 13–16). However, among the congeners, four species mentioned above are separate from the rest of two congeners and new species in having the prominent continuous black band or stripe on upper-jaw membrane rather than are discontinuous stripe or patched melanophores in *O. merensis* and *O. psilos*.

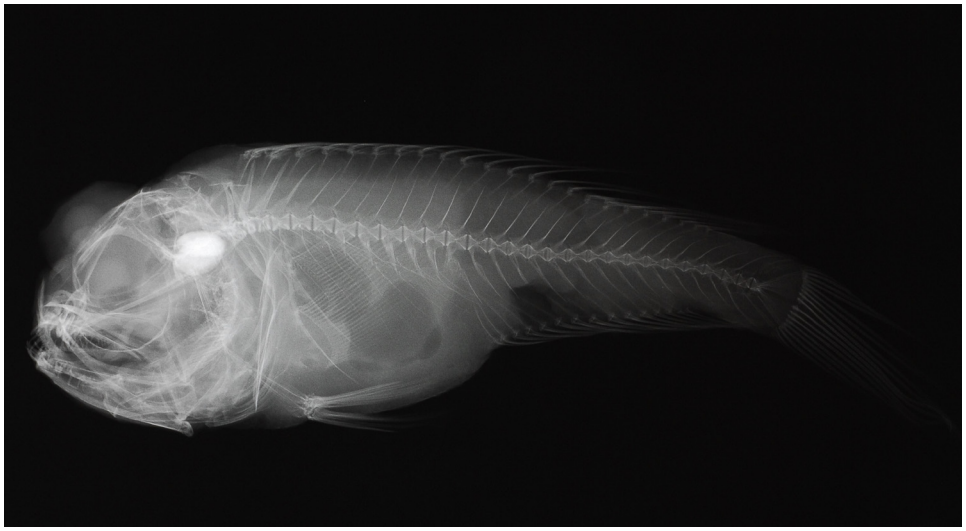
Owstonia aurora is quite similar to *O. merensis* and *O. psilos* by sharing discontinued black stripe or patched melanophores on the upper-jaw membrane. However, *O. merensis* has fewer cheek scale rows 6 (vs. 7–8 in *O. aurora*), anal-fin II, 11 (vs. I, 14), lateral line ended at 12–14 (vs. 17–22), fewer body oblique body scale rows in mid-lateral 45 (vs. 54–58); color in alcohol, the black blotch on anterior dorsal-fin membrane between 2nd spine to 2nd–3rd ray (vs. 2nd spine to 6th ray), posterior anal-fin membrane pigmented rather than it is clear and transparent as in *O. aurora*. The specimens of *O. psilos* from Western Australian have fewer cheek scale rows 5–6 (vs. 7–8), fewer oblique body scale rows in mid-lateral about 32 (vs. 54–58); color in alcohol with anterior dorsal-fin membrane black blotch between 3rd spine to 4–5th soft ray (vs. 2nd spine to 6th soft ray in holotype and one paratype, other paratype ASIZP0068193, III–5th soft ray). According to the color in fresh paratype photograph, (NMV A.29664-004, 64 mm SL), membranes of all fins except white pelvic are red with white margins; however, *O. aurora* has red membranes of all fins except pelvic with white margin and base, and white stripes on dorsal and caudal-fin membranes.

Distribution. Currently known only from the type locality in the East Luzon, Philippines. Depth ranges about 342–358 m.

Etymology. The new species is named after the "Aurora 2007" Philippine Expedition, the project was a series of deep-sea expedition under the Census of Philippine Deep-Sea Biodiversity.

(A)

(B)



(C)

FIGURE 2. *Owstonia aurora*, paratype, ASIZP0068193, 69.8 mm SL, Aurora, off East Luzon, Philippines. (A) & (B) fresh specimen photograph; (C) X-radiograph.

TABLE 1. Characters of counts and proportional measurements of *Owstonia aurora* **sp. nov.**

	Holotype	Paratype	Paratype
Catalog number	ASIZP0068194	ASIZP0068193	ASIZP0067846
Standard length (mm)	74.9	88.0	69.8
Total length (mm)	101.7	118.0	93.6
Counts			
Gill rakers on first arch	11+1+23=35	12+1+25=38	12+1+25=38
Caudal-fin rays (*ub*+*b*+*ub*)	2+14+2=18	2+13+3=17	2+13+2=17
Cheek scales (scale rows)	70/86 (8/8)	84 (7/8)	NA (8/8)
Predorsal scales	7+	9	9
Scales in longitudinal row	58+4	56+4	54+4
Lateral line scales below dorsal-fin base	19/22	19/20	17+
Proportions as % of SL			
Head length	36.2	34.1	34.4
Orbital diameter	14.7	16.4	14.8
Interorbital width	5.2	5.2	4.9
Snout	6.8	7.2	7.9
Maxilla length	16.8	16.5	15.0
Maxilla width	8.9	8.6	8.0
Body depth	35.4	35.2	28.7
Dorsal-fin base length	61.9	60.2	59.0
Anal-fin base length	31.0	26.1	23.6
Caudal-fin length	35.8	34.1	34.1
Pectoral-fin length	19.8	21.1	19.5
Pelvic-fin length	21.2	20.5	19.8
Caudal-peduncle length	15.5	14.4	13.6
Caudal-peduncle depth	10.9	9.8	11.0
Predorsal length	34.7	34.5	33.8
Prepectoral length	34.3	32.2	35.7
Prepelvic length	36.0	34.9	38.4
Preanal length	57.5	57.0	61.9
Proportions as % of HL			
Orbital diameter	40.6	48.0	42.9
Interorbital width	14.4	15.3	14.2
Snout	18.8	21.0	22.9
Maxilla length	46.5	48.3	43.8
Maxilla width	24.7	25.3	23.3

ub and *u* of pectoral-fin rays in parentheses indicate “unbranched “ and “branched”, respectively.

Remarks. Difficulties in identification for specimens of *Owstoni*a including characters, such as counts and general appearance were overlapped between species, comparison based on only one holotype or few type specimens, color was based on fade museum alcohol preserved specimens, and scales were lost or damaged during trawling. Type specimens in this study were preserved in better condition and fresh specimen photographs providing more detailed color characters. Besides, fin rays and spines, dentition, cephalic pores, gill rakers, and scales were counted after Alizarin Red stained provided more robust counts.

Comparative materials. *Owstonia doryptera* (Fowler, 1934) (2 specimens): Lectotype, USNM 93166, 66 mm SL, Philippines, Mindanao, R/V Albatross sta. D.5516, 9 Aug. 1909; paralectotype, USNM 410302, 56.8 mm SL, same data as lectotype.

Owstonia grammodon (Fowler, 1934) (3 specimens): Holotype, USNM 093167, 67 mm SL, Dowarra I., Sulawesi, Indonesia, 2 Dec. 1909, bottom trawl, station D.5629, 375 m; ASIZP 59004, 103 mm SL, Nanfangao Fish

Market, Yilan County, NE Taiwan, 1 July 1993, commercial bottom trawl, no depth data; ASIZP 64630, 118 mm SL, Dashi Fish Market, Yilan County, NE Taiwan, 27 June 2004, commercial bottom trawl, no depth data.

Owstonia kamoharai Endo *et al.*, 2015 (6 specimens): Holotype, NSMT-P 109686, 392 mm SL, male, Mimase fish market, Kochi Prefecture, southern Japan, bottom trawl, 200 m, 30 Nov. 1985. Paratypes. 5 specimens: BSKU 41466, 402 mm SL, female, Mimase fish market, Kochi Pref., southern Japan, bottom trawl, 250–300 m, bottom trawl, 9 Apr. 1985; BSKU 42457, 375 mm SL, female, Mimase fish market, Kochi Pref., southern Japan, 240 m, bottom trawl, 30 Nov. 1985; BSKU 74538, 147 mm SL, sex unknown, Suruga Bay, off Heta, Numazu City, Shizuoka Pref., 300–350 m, bottom trawl, coll. by E. Iizuka, 20 Feb. 1992; FAKU 98751, 263 mm SL, male, off Nachi-katsuura, Wakayama Pref., Kii Peninsula, 260 m, bottom line, coll. by H. Ikeda, 3 Feb. 2011; NSMT-P 114189, 282 mm SL, male, Mimase fish market, Kochi Pref., bottom trawl, coll. by T. Yamakawa, 18 Dec. 1965.

Owstonia japonica Kamohara, 1935 (19 specimens): all specimens from Tosa Bay, Mimase Fish Market, Kochi City, Japan: ANSP 151948, 146 mm SL, 31 Oct. 1980; BSKU 9646, 101 mm SL, 26 Feb. 1949; BSKU 41160, 152 mm SL, BSKU 41180, 144 mm SL, BSKU 41183, 129 mm SL, BSKU 41210, 152 mm SL, 1 Apr. 1985; BSKU 51474, 121 mm SL, BSKU 51532, 142 mm SL, BSKU 51536, 121 mm SL, 13 Apr. 2000; BSKU 52875, 103 mm SL, 6 Oct. 2000; BSKU 55443, 95 mm SL, 11 Jan. 2001; BSKU 62255, 135 mm SL, 13 Jan. 2003; BSKU 69369, 126 mm SL, 4 Feb. 2004; BSKU 71684, 147 mm SL, 13 Jan. 2003; BSKU 74531, 142 mm SL, 24 Jan. 2005; BSKU 74970, 157 mm SL, 8 Nov. 2004; BSKU 90841, 141 mm SL, 14 Jan. 2007; BSKU 92881, 146 mm SL, 9 Dec. 2007; BSKU 97025, 156 mm SL, off Kan-no-ura, Kousei-maru, 20 Dec 2007.

TABLE 2. Comparison of selected characters for *Owstonia aurora* **sp. nov.** and six closely congeners.

Counts and Color/Species	*O. aurora*	*O. psilops*	*O. merensis*	*O. crassa*	*O. melanoptera*	*O. similis*	*O. simotera*
Anal-fin	I, 14	I, 14	II, 11	I, 12–13	I, 14	I, 14	I, 14
Cheek scale rows	7–8	5–6	6	4–7	7	6	11–12
Lateral line ending (below dorsal-fin soft rays)	17–22	14–20	12–14	14–17	7–8	16	15–18
Oblique body scale rows in mid-lateral series	54–58	about 32	45	45–47	48–53	52–56	50–60
Total gill rakers on first arch	35–38	36–40	37	37–42	38–39	32–33	34–38
Color pattern							
Position of dorsal-fin blotch	II–6th ray	III–4/5th rays	II–2/3nd ray	I–4/5 ray	II–5th ray	II–3rd ray	II–5th ray
Anal-fin membrane pigmentation	absent	absent	present	present	present	present	absent
Markings on upper jaw membrane	discontinuous stripes	discontinuous stripes	weak stripe	prominent band	prominent band	prominent band	prominent band

Owstonia sibogae (Weber, 1913) (6 specimens): Lectotype, ZMA 112.568, 82 mm SL, 2 Feb. 1900, Timor Sea, Indonesia, 10.47°S, 12348°E, 216 m; Paralectotypes, ZMA, 112.568. 3 specimens, 90–122 mm SL, 2 Feb. 1900, Timor Sea, Indonesia, 10.47°S, 123.48°E, 216 m; ANSP 152642, 99 mm SL, July 1981, Bali Sea, Saleh Bay, 8.50°S, 118.00°E, 150–280 m; ASIZP0068128, 80.5 mm SL, 5 May 2007, CP2719, E. Aurora, Luzon, the Philippines, 14.45°N, 121.80°E, French-type beam trawl, 155–160 m.

Owstonia maccullochi (Whitley, 1934) (1 specimen): Holotype, AMS IA5818, 162 mm SL, NSW, Sydney, Australia, 238 m depth.

Owstonia microlepis (Fowler, 1934) (1 specimen): Holotype, ANSP 54940, 187 mm SL, Durban, Natal, South Africa, 335–374 m depth, 1932.

Owstonia sarmiento Liao *et al.*, 2009 (4 specimens): Holotype, PNMI 17006 (ASIZP0067939), 61 mm SL,

21 May 2007, CP2667-003, Aurora, East Luzon, Philippines, 15.93°N, 121.78°E, 307–292 m, French-type beam trawl, coll. MV DA-BFAR. Paratypes, ASIZP0068216, 64 mm SL, 2 Jun. 2007, CC2743-020, Aurora, East Luzon, Philippines, 16.02°N 121.85°E, 302–309 m, otter trawl, coll. MV DA-BFAR; ASIZP0067820, 63 mm SL, 20 May 2007, CP2656-004, Aurora, East Luzon, Philippines, 16.03°N, 121.88°E, 262–278 m, French-type beam trawl, coll. MV DA-BFAR; ASIZP0068380, 63 mm SL, 20 May 2007, CP2656-004, Aurora, East Luzon, Philippines, 16.03°N, 121.88°E, 262–278 m, French-type beam trawl, coll. MV DA-BFAR.*Owstonia simotera* (Smith, 1968) (1 specimen): Holotype, SAIAB 0605, 298 mm SL, Bazaruto I., Mozambique, West Indian Ocean.

Owstonia tosaensis Kamohara, 1935 (12 specimens): ASIZP0066433, 188 mm SL, Nanfangao Fish Market, Yilan County, North East Taiwan, commercial bottom trawl, no depth data, 2 Aug 2005; ASIZP0060461, 176 mm SL, Hengchun Fish Market, Pingtung County, South Taiwan, commercial bottom trawl, no depth data, 6 Mar. 1992; ASIZP0055535, 121 mm SL, Tungkung, Pingtung County, South Taiwan, commercial bottom trawl, no depth data, 1 Feb. 1980; 9 specimens from Mimase Fish Market, Kochi City, Japan, BSKU 201, 133 mm SL, 2 Dec. 1950; BSKU 4230, 192 mm SL, 31 Oct. 1954; BSKU 9648, 116 mm SL, 27 Dec. 1950; BSKU 39683, 210 mm SL, 21 Nov. 1983; BSKU 41691, 173 mm SL, off Ashizuri, 19 Apr. 1985; BSKU 52076, 241 mm SL, 5 Oct. 2000; BSKU 53034, 112 mm SL, 13 Dec. 2000; BSKU 53203, 212 mm SL, date unknown; BSKU 81718, 195 mm SL, 18 Feb. 1994.

Owstonia totomiensis Tanaka, 1908 (1 specimen): Holotype, FMNH 55424, 315 mm SL, 10 Feb.1906, Totomi, Honda, Japan; NTUM 6857, 373 mm SL, North East Taiwan; 9 Jun.1987.

Owstonia weberi (Gilchrist, 1922) (1 specimen): Syntype, SAIAB(RUSI) 141072, 175 mm SL, Durban, South Africa, 2 Jul.1920; ANSP 146627, 320 mm SL, Kenya, 280 m, 17 Dec. 1980.

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