

Taxonomic revision of the genus *Ratabulus* (Teleostei: Platycephalidae), with descriptions of two new species from Australia

HISASHI IMAMURA¹ AND MARTIN F. GOMON²

¹ Laboratory of Marine Biology and Biodiversity (Systematic Ichthyology), Faculty of Fisheries Sciences, Hokkaido University, 3-1-1 Minato-cho, Hakodate, Hokkaido 041-8611, Japan (imamura@fish.hokudai.ac.jp)

² Ichthyology, Sciences Department, Museum Victoria, GPO Box 666, Melbourne, Victoria, 3001, Australia (mgomon@museum.vic.gov.au)

Abstract

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The platycephlid genus *Ratabulus* Jordan and Hubbs, 1925 is reviewed taxonomically. The genus is defined by the long, slender canines on its upper jaw, palatine and vomer, the presence of a small free spine between the two dorsal fins, the iris lappet broad and simple dorsally, the suborbital ridge with numerous spines, the suborbitals and preopercle lacking sensory tubes in the cheek region, and lateral line scales with only a single pore posteriorly. Although the genus has been regarded as comprising only a single species, *Ratabulus diversidens* (McCulloch, 1914), this study presents descriptions of four: *R. megacephalus* (Tanaka, 1917) in southern Japan to the South China Sea, *R. diversidens* in eastern Australia, *R. fulviguttatus* sp. nov. in northwestern Australia and *R. ventralis* sp. nov. in northeastern Australia. *R. megacephalus*, having been regarded as a junior synonym of *R. diversidens*, is easily separable from that species in having more anteroventrally slanted oblique scale rows above the lateral line (94–112 versus 80–93). *R. fulviguttatus* sp. nov. is similar to *R. megacephalus* in having small dark spots dorsally on the body, but differs from it in having a shorter snout (30.4–34.8% HL versus 31.2–35.7% HL), longer pelvic fin (20.9–25.7% SL versus 19.5–23.1% SL), and a pale brown head and body (versus dark brown). Although *R. ventralis* sp. nov. resembles *R. diversidens* in having the nasal bone with tubercles, the former is distinguished from the latter and *R. megacephalus* by its longer pectoral fin (15.8–18.6% SL versus 13.9–17.0% SL). *R. diversidens* also differs from its three congeners in having larger brownish spots on the pelvic fin.

Keywords

Ratabulus, revision, *Ratabulus fulviguttatus* sp. nov., *Ratabulus ventralis* sp. nov.

Introduction

Jordan and Hubbs (1925) proposed the genus *Ratabulus* for *Thysanophrys megacephalus* Tanaka, 1917 (the spelling *Rutabulus* also appeared in this publication, as described below), based on its possession of characters, such as canine-like upper jaw teeth. Matsubara and Ochiai (1955) redefined the genus using a greater variety of characters, including osteology, as seen in the configuration of the urohyal and pelvic bones. *Insidiator diversidens*, described by McCulloch in 1914, was subsequently referred to this genus (e.g. Sainsbury et al., 1985; Paxton et al., 1989; Hoese et al., 2006). Knapp (1999) synonymised *R. megacephalus* with *R. diversidens*, but some authors did not agree (e.g. Nakabo, 2002; Hoese et al., 2006). After examining specimens collected from the West Pacific Ocean and Australia in detail, we concluded that the genus comprises four species, including the northwest Pacific *R. megacephalus*, two new species from northwestern, and northeastern Australia, as well as *R. diversidens*, confined to southeastern Australia. We provide descriptions for all four and a key to distinguish between them.

Materials and methods

Counts and measurements were made according to Hubbs and Lagler (1958), and were routinely taken from the left side, except for gill rakers that were counted on the right side. A small detached spine at the origin of the first dorsal fin and another between the dorsal fins are expressed by separating the values with a '+', and were not included in the length of the first dorsal fin base. Pectoral fin counts follow the formula:

$$\begin{array}{l} \text{dorsal unbranched} \\ + \\ \text{intermediate branched} \\ + \\ \text{ventral unbranched rays} \end{array} = \text{total rays.}$$

The number of oblique scale rows above the lateral line is the number of diagonally angled scale rows slanting downward and forward (anteroventrally), or downward and backward (posteroventrally), which was counted just above the lateral line. Measurements of less than 100 mm were made with

calipers to the nearest 0.1 mm; those 100 mm or more were recorded to an accuracy of three significant figures. Terminology of head spines follows Knapp et al. (2000). Institutional acronyms are from Eschmeyer (1998), except for Hokkaido University Museum, Hakodate (HUMZ) and National Museum of Nature and Science, Tokyo (NSMT). Standard and head lengths are abbreviated as SL and HL, respectively. In species descriptions, meristic and morphometric data for primary types are presented first, followed by the range in secondary or nontype material enclosed by parentheses where variations that deviate from the primary type value were observed. Color comparisons between species are based on preserved specimens. Collection localities of the four species of *Ratabulus* are shown in fig. 1.

Genus *Ratabulus*

(Figures 2–8)

Ratabulus Jordan and Hubbs, 1925: 286 (original description, type species: *Thysanophrys megacephalus* Tanaka, 1917).

Rutabulus Jordan and Hubbs, 1925: 93 (incorrect original spelling and unavailable name; see ‘Remarks’).

Diagnosis. A genus of Platycephalidae with I + VII to IX + 0 or I-10 to 12 dorsal fin rays (usually I + VIII + I-12); 11 or 12 anal fin rays (usually 12); 18–21 pectoral fin rays (usually 19 or 20); 52–56 pored lateral line scales; 1 + 5 to 8 gill rakers (usually 1 + 6 or 7); body depressed and elongate, mostly covered with ctenoid scales, some cycloid scales on undersurface; head flattened; postorbital region, opercle, interorbit and nape scaled; upper surface of eye without papillae or flaps; iris lappet

usually broad and simple dorsally; interorbit moderately narrow and slightly concave; posterior margin of orbit lacking distinct pit; interopercular flap absent; moderate to long and slender canines on upper jaw, palatine, and in two separate patches on vomer; tooth band on upper jaw without distinct notch; lip margins without papillae; suborbital and preopercular sensory tubes absent on cheek; pored lateral line scales with a single exterior opening posteriorly; first dorsal fin originating slightly posterior to opercular margin; pectoral fin rounded posteriorly, its posterodorsal corner weakly pointed; innermost pelvic fin ray unbranched, others branched; fourth pelvic fin ray longest; and posterior margin of caudal fin slightly oblique, upper lobe longer.

Remarks. The genus *Ratabulus* includes the following four species: *R. diversidens* from eastern Australia, *R. megacephalus* from the Northwest Pacific, *R. fulviguttatus* sp. nov. from northwestern Australia and *R. ventralis* sp. nov. from northeastern Australia. *Ratabulus* can be easily distinguished from other genera of Platycephalidae in usually having one small free spine between the dorsal fins, iris lappet usually broad and simple dorsally, suborbital ridge with many small to large spines, moderate to long and slender canines on the upper jaw, palatine and in two separate patches on the vomer, no sensory tubes from the suborbitals and preopercle in the cheek region, and pored lateral line scales with one posterior exterior opening.

Although Jordan and Hubbs (1925: 286) proposed the name *Ratabulus* for this genus, *Rutabulus* appeared in the list of new genera on an earlier page (96) of the same publication. As no-one has dealt with this discrepancy, we, as first revisers, consider *Ratabulus* to be the correct spelling, since it has been used by most subsequent authors (e.g. Matsubara and Ochiai, 1955; Paxton et al., 1989; Shao and Chen, 1993; Imamura, 1996; Kim et al., 2005; Knapp, 1999; Hoese et al., 2006). *Rutabulus*, therefore, is regarded as an incorrect spelling and an unavailable name (ICZN, 1999: Arts. 24.2.3, 32.4).

Key species of *Ratabulus*

- 1 Anteroventrally slanted oblique scale rows above lateral line 80–93; dorsal surface of head with large and pale to dark-brown spots of irregular shapes; pelvic fin with large brown spots *R. diversidens*
- Anteroventrally slanted oblique scale rows above lateral line 91–113; dorsal surface of head with small, round, brown spots; pelvic fin with small brown spots 2
- 2 Nasal bone with tubercles (fig. 4d); pelvic fin 19.5–25.7% SL; dorsal surface of body without spots *R. ventralis* sp. nov.
- Nasal bone without tubercles (figs 4b–c); pelvic fin 25.3–28.2% SL; dorsal surface of body with brownish or dark-brownish spots 3
- 3 Snout 30.4–34.8% HL; dorsal surface of head and body pale brown *R. fulviguttatus* sp. nov.
- Snout 31.2–35.7% HL; dorsal surface of head and body dark brown *R. megacephalus*

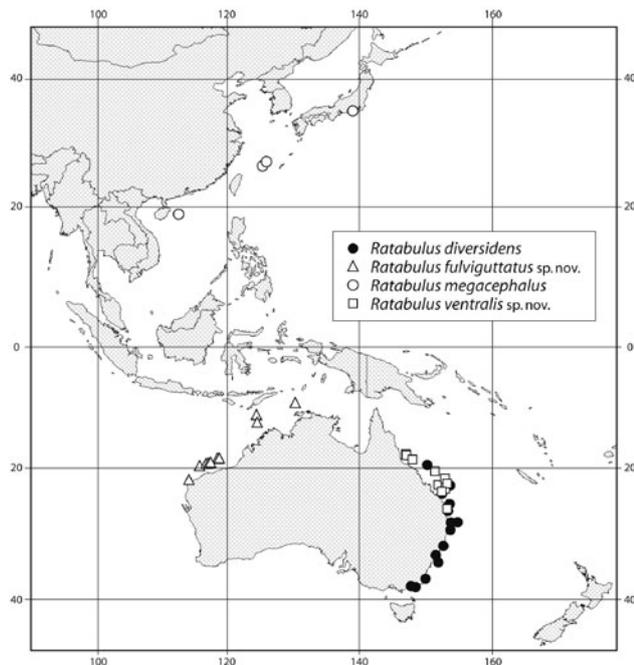


Figure 1. Map of the West Pacific and Australia with collection localities for specimens of four species of *Ratabulus*.

Table 1. Selected proportional measurements for specimens and types of four species of *Ratabulus* spp.

	<i>R. diversidens</i>		<i>R. megacephalus</i>		<i>R. fubviguttatus</i> sp. nov.		<i>R. ventralis</i> sp. nov.	
	Lectotype AMS E.2103	Paralectotypes (n=2)	Non-types (n=23)	Non-types (n=23)	Holotype CSIRO H4031-79	Paratypes (n=16)	Holotype CSIRO H6116-02	Paratypes (n=11)
Standard length (mm)	232	212, 245	54.4–391	83.4–344	262	140–266	304	172–328
% Standard length								
Head length	38.0	36.5–39.3	36.5–41.0	37.3–41.8	39.2	37.6–42.0	37.7	38.4–41.2
Snout length	11.8	11.4–11.6	11.5–13.2	11.8–14.4	11.9	11.4–13.8	11.8	12.2–13.1
Orbital diameter	8.5	7.9–10.1	7.4–10.8	7.4–9.6	8.1	7.8–9.1	7.7	7.6–9.1
Interorbital width	2.7	3.0, ²	1.8–3.7	2.0–3.0	2.4	2.1–2.7	2.7	2.4–3.1
Upper jaw length	13.8	13.4–14.2	13.0–15.4	13.5–16.0	14.1	13.6–15.3	13.3	13.8–15.3
Lower jaw length	20.5	19.9–21.1	19.9–23.5	20.2–25.1	21.8	21.2–23.6	20.7	21.4–22.9
Caudal peduncle depth	4.1	3.9–4.2	3.7–4.4	4.0–4.9	4.0	4.0–4.8	4.5	3.9–4.7
Caudal peduncle length	9.7	9.7–9.8	8.8–10.5	10.5–12.6	10.8	9.5–11.9	9.9	9.3–10.8
Predorsal length	38.6	37.7–40.5	37.7–40.8	39.0–42.1	40.1	39.0–43.2	39.4	39.3–42.0
First dorsal fin base length	17.8	17.7–18.8	16.8–19.2	13.8–18.1	18.8	17.3–19.5	18.6	15.2–19.6
Second dorsal fin base length	23.2	21.8–24.4	21.8–24.4	22.1–24.9	21.4	21.2–24.1	23.6	21.7–23.8
Length of first spine of first dorsal fin	1.1	1.0–1.1	0.7–1.6	0.7–2.1	0.7	0.5–1.4	1	0.8–1.6
Length of second spine of first dorsal fin	1	13.7–15.0	11.8–15.0	11.0–15.3	13.1	11.1–14.3	14.0	12.3–15.0
Length of first ray of second dorsal fin	10.6	10.7 ²	8.5–11.8	8.8–15.2	10.7	9.8–11.7	10.0	10.3–11.8
Anal fin base length	28.3	28.6–29.8	27.9–30.6	25.0–28.9	26.1	24.8–28.2	26.6	25.2–27.6
Length of first anal fin ray	6.4	6.1 ²	5.4–7.1	5.2–8.6	5.7	5.2–6.6	5.4	5.6–6.4
Pectoral fin length	14.3	14.1–14.5	13.9–15.8	13.9–17.0	16.3	14.6–16.5	17.3	15.8–18.6
Pelvic fin length	24.8	23.9–24.7	22.1–28.5	19.5–23.1	23.3	20.9–25.7	27.2	25.3–28.2
Caudal fin length	17.7	3	16.4–21.0	16.6–19.1	16.7	16.1–19.9	16.7	16.7–18.7
% Head length								
Snout length	31.0	29.5–31.1	29.5–32.3	31.2–35.7	30.4	30.4–34.8	31.3	30.9–32.4
Orbital diameter	22.3	21.6–25.6	19.7–26.5	19.2–22.8	20.6	19.8–22.4	20.5	19.3–22.4
Interorbital width	7.1	8.3 ²	4.5–9.7	5.1–7.8	6.1	5.0–6.9	7.2	6.0–8.0
Upper jaw length	36.4	36.0–36.8	34.2–38.4	34.5–38.4	36.0	35.1–37.4	35.2	35.1–37.1
Lower jaw length	53.9	53.8–54.5	53.6–57.4	53.3–60.1	55.7	55.7–58.5	54.9	54.4–56.4

¹ broken² broken in smaller specimen³ broken in both specimens

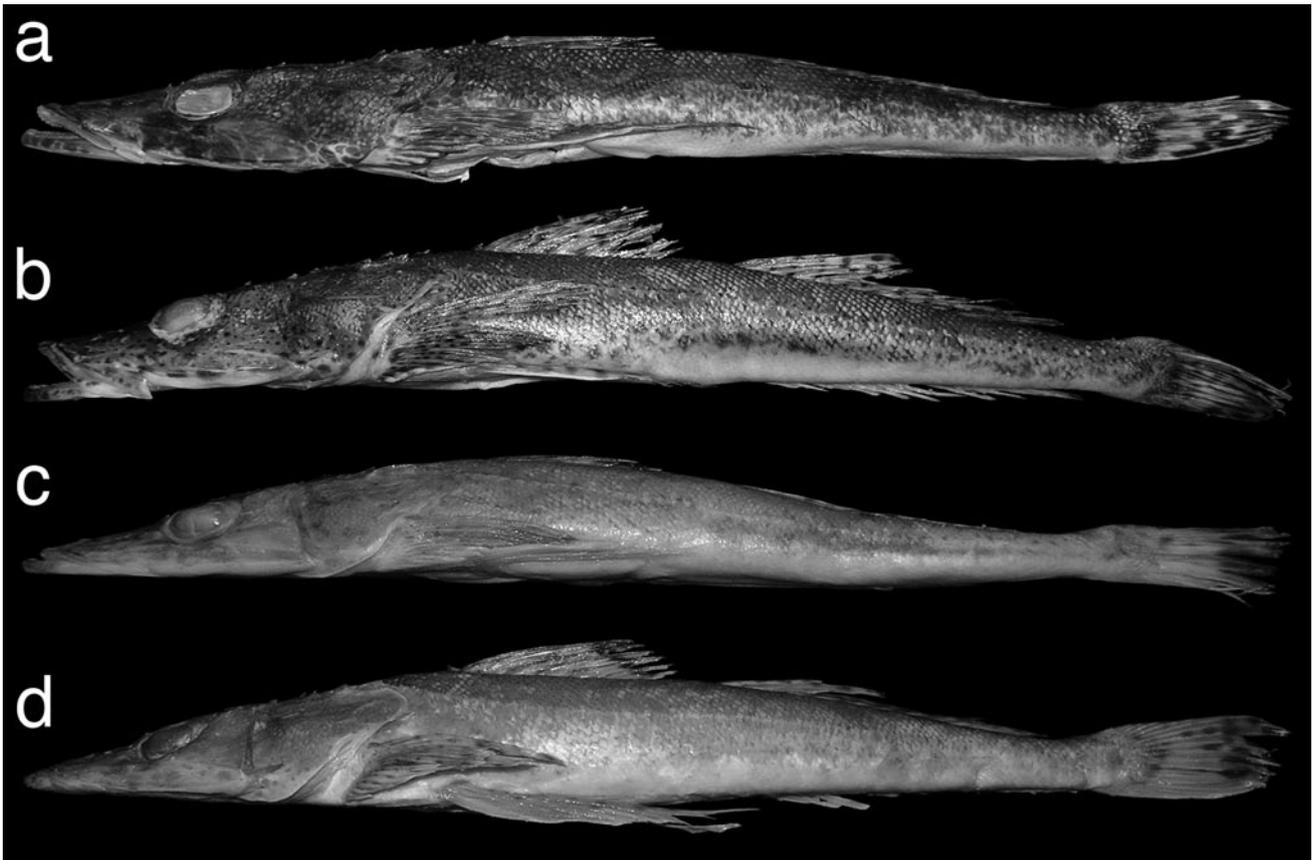


Figure 2. Lateral views of four species of *Ratabulus*: a, *R. diversidens*, AMS I.40494-001, 391 mm SL; b, *R. megacephalus*, HUMZ 200048, 344 mm SL; c, *R. fulviguttatus* sp. nov., CSIRO H4031-79, holotype, 262 mm SL; d, *R. ventralis* sp. nov., CSIRO H6116-02, holotype, 304 mm SL.

Ratabulus diversidens (McCulloch, 1914)

English name: Freespine flathead

(Figures 2a, 3a, 4a, 5a, 6a, 7, 8a)

Insidiator diversidens McCulloch, 1914: 148, fig. 13, pl. 31-fig. 1 (original description, type locality: 11 km northeast of Port Stephens Lighthouse, New South Wales, Australia); McCulloch, 1929: 403 (list and distribution, New South Wales, Australia)

Ratabulus diversidens: Paxton et al., 1989: 470 (list and distribution, Queensland to off Sydney, New South Wales, Australia) (in part); Knapp, 1999: 2410, unnumbered fig. (description, eastern Australia) (in part); Hoese et al., 2006: 944 (list and distribution, Queensland to off Sydney, New South Wales, Australia) (in part).

Lectotype (designated here). AMS E.2103, 232 mm SL, 11 km northeast of Port Stephens Lighthouse, New South Wales, 87 m, 10 November 1910, FIS Endeavour.

Paralectotypes. Two specimens. AMS E.1566, 212 mm SL and AMS I.11254, 245 mm SL, collected with lectotype.

Nontypes. Twenty-three specimens (54.4–391 mm SL) eastern Australia. AMS I.15523-010, 190 mm SL, off Brisbane, Queensland (26°31'S, 153°28'E), 137 m, 26 July 1968; AMS I.23993-003, 205 mm SL, Ballina-Tweed Heads, New South Wales (28°13'S, 153°52'E), 201 m, 17 August 1978, FRV *Kapala*; AMS I.25097-007, 2: 118–140 mm

SL, east of Brunswick Heads, New South Wales (28°24'S, 153°51'E), 155–174 m, 3 June 1978, FRV *Kapala*; AMS I.25804-019, 278 mm SL, just north of Townsville, Queensland (17°51'S, 147°01'E), 260 m, 9 January 1986, RV *Soela*; AMS I.31332-001, 370 mm SL, off Wollongong, New South Wales (34°25'S, 152°00'E), 18–109 m, February 1991; AMS I.39088-001, 369 mm SL, 5–6 km offshore, North Head, New South Wales (33°17'S, 151°35'E), 65 m, 31 January 1999; AMS I.40494-001, 391 mm SL, off Crowdy Head, New South Wales (31°51'S, 152°45'E), 60–70 m, 2000; AMS I.45084-009, 2 of 5: 182–230 mm SL, northeast of Arrawarra Headland, New South Wales (29°30'S, 153°48'E), 7 May 1971, FRV *Kapala*; CSIRO H630-29, 273 mm SL, south of Saumarez Reef, Queensland (22°36'S, 153°50'E), 345–350 m depth, 17 November 1985, FRV *Soela*; CSIRO H630-30, 308 mm SL, collaboration with CSIRO H630-29; CSIRO H698-22, 295 mm SL, east of Bowen, Marian Plateau, Queensland (19°29.2'S, 150°16.5'E – 19°29.8'S, 150°17.8'E), 324–328 m, 15 November 1985, FRV *Soela*; CSIRO H4268-01, 204 mm SL, east of Pambula, New South Wales (36°54'S, 149°58'E – 36°55'S, 149°57'E), 42–43 m, 28 April 1996, FRV *Southern Surveyor*; NMV A15248, 290 mm SL, off Lakes Entrance, Victoria (38°07'S, 147°45'E), January 1995; NMV A15249, 283 mm SL, collaboration with NMV A15248; NMV A19471, 349 mm SL, off Lakes Entrance, Victoria (38°17'52"S, 148°33'34"E), 90–156 m, 22 October 1997; QM I.2117, 313 mm SL, east of Tweed Heads, New South Wales (28°12'S, 154°54'E), 235 m, 27 July 1982;

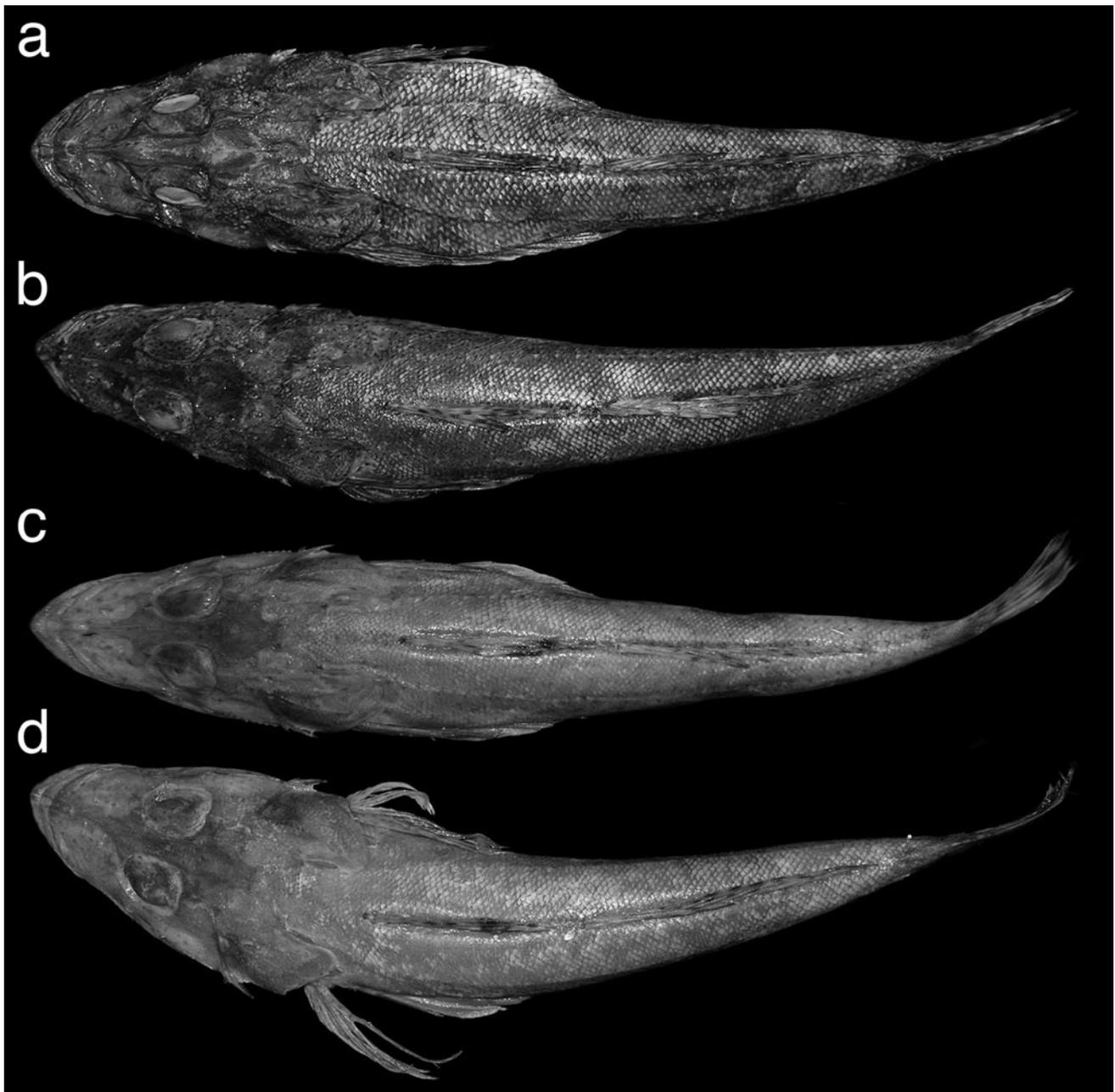


Figure 3. Dorsal views of four species of *Ratabulus*: a, *R. diversidens*, AMS I.40494-001, 391 mm SL; b, *R. megacephalus*, HUMZ 200048, 344 mm SL; c, *R. fulviguttatus* sp. nov., CSIRO H4031-79, holotype, 262 mm SL; d, *R. ventralis* sp. nov., CSIRO H6116-02, holotype, 304 mm SL.

QM I.18698, 215 mm SL, Queensland (25°27'S, 153°46'E – 25°17'S, 153°43'E), 183–230 m, 14 September 1980; QM I.18813, 2: 203–252 mm SL, Queensland (23°50'S, 152°36'E – 23°46'S, 152°32'E), 238–274 m, 23 September 1980; QM I.26624, 274 mm SL, east of Fraser Island, Queensland (26°S, 153.3°E), 30 m, 16 May 1990; QM I.34240, 2: 54.4–144 mm SL, southeast of Cape Moreton, Queensland (28°12'S, 154°54'E), 235 m, 27 July 1982.

Diagnosis. A species of *Ratabulus* with 80–93 anteroventrally slanted oblique scale rows above lateral line; snout length 29.5–32.3% HL, slightly decreasing proportionally with growth; pectoral fin length 13.9–15.8% SL; pelvic fin length 22.1–28.5% SL; nasal bone with tubercles in larger specimens; dorsal surface of head with large, pale to dark-brown irregularly shaped spots, body without spots dorsally; pelvic fin with large brown spots.

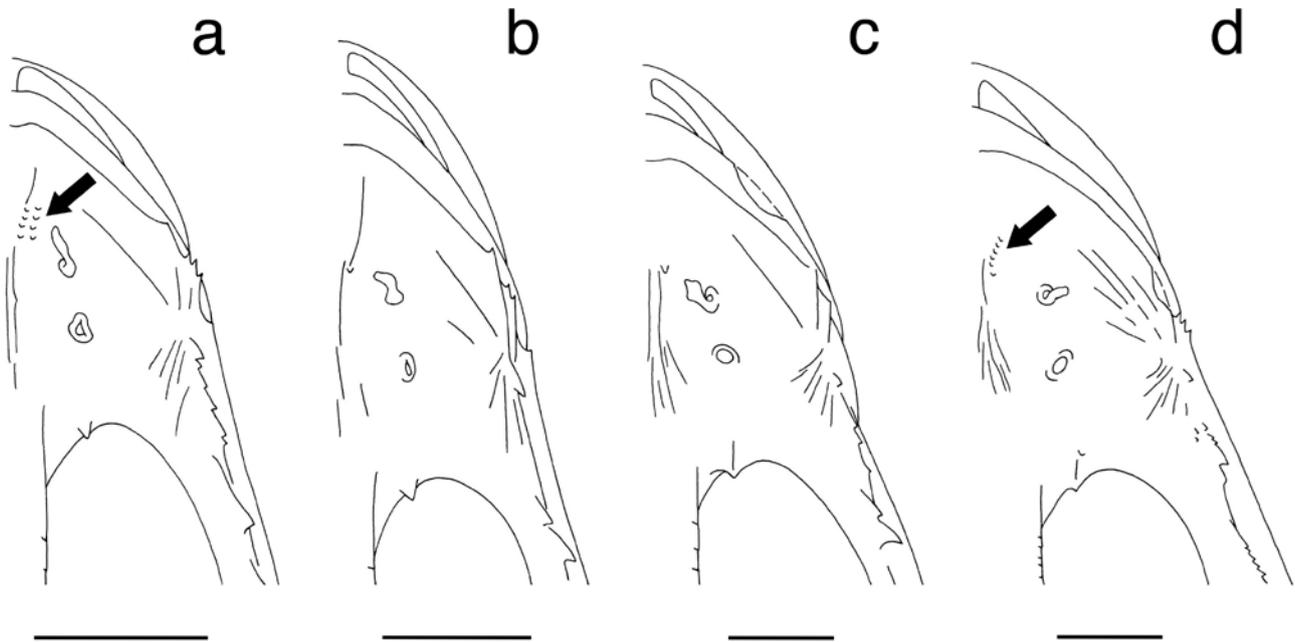


Figure 4. Dorsal views of anterior head region in four species of *Ratabulus*: a, *R. diversidens*, AMS I.11523-010, 190 mm SL; b, *R. megacephalus*, BSKU 87405, 216 mm SL; c, *R. fulviguttatus* sp. nov., CSIRO H4031-79, holotype, 262 mm SL; d, *R. ventralis* sp. nov., CSIRO H6116-02, holotype, 304 mm SL. Arrows show tubercles on nasal bone. Scale bar = 10 mm.

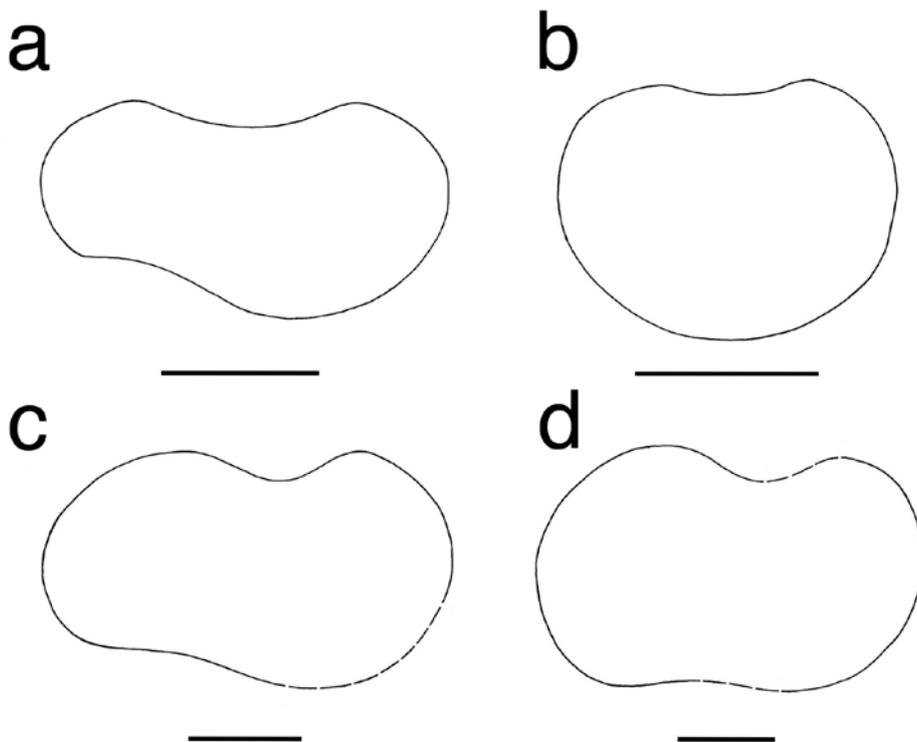


Figure 5. Iris lappet (left eye) of four species of *Ratabulus*: a, *R. diversidens*, AMS I.45084-009, 230 mm SL; b, *R. megacephalus*, BSKU 87405, 216 mm SL; c, *R. fulviguttatus* sp. nov., CSIRO H4031-79, holotype, 262 mm SL; d, *R. ventralis* sp. nov., CSIRO H6116-02, holotype, 304 mm SL. Scale bar = 3 mm.

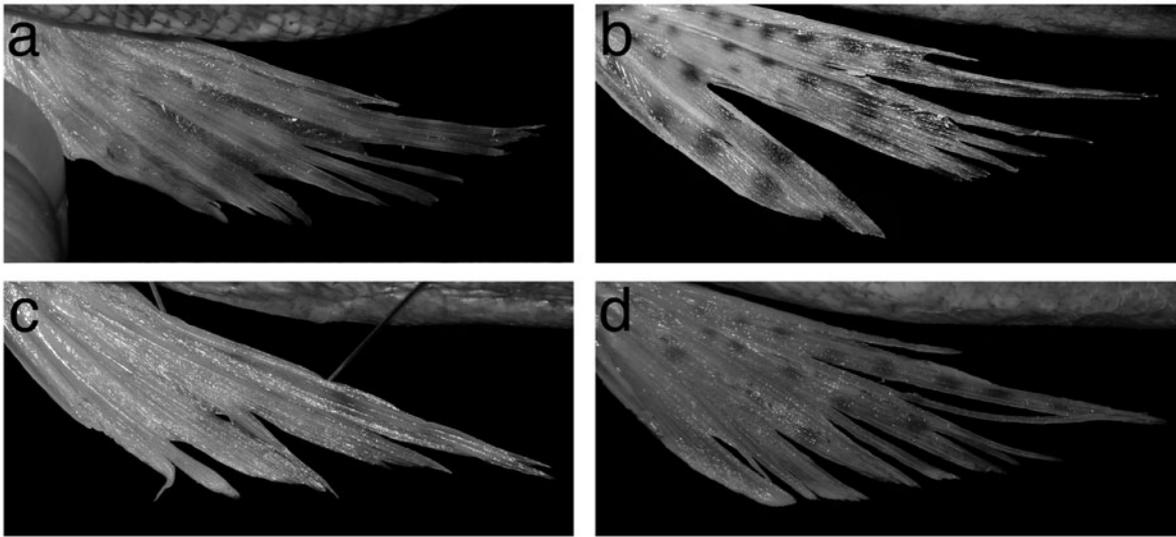


Figure 6. Dorsolateral view of pelvic fin in four species of *Ratabulus*: a, *R. diversidens*, CSIRO H630-29, 273 mm SL; b, *R. megacephalus*, HUMZ 200048, 344 mm SL; c, *R. fulviguttatus* sp. nov., CSIRO H4031-79, holotype, 262 mm SL; d, *R. ventralis* sp. nov., CSIRO H6116-02, holotype, 304 mm SL.

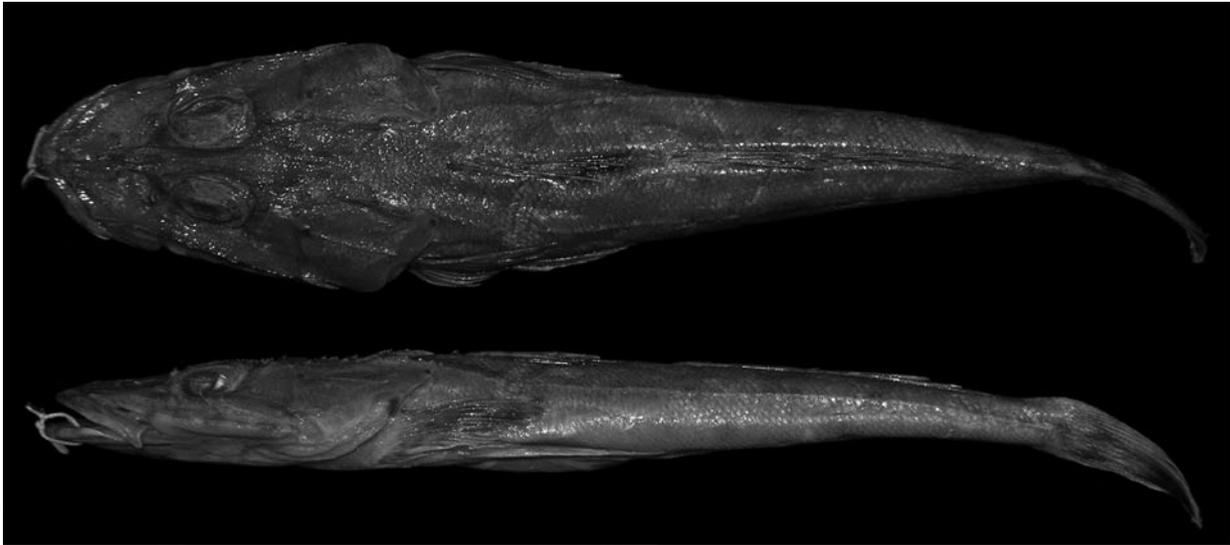


Figure 7. Dorsal (upper) and lateral (lower) views of *Ratabulus diversidens*, AMS E.2103, lectotype, 232 mm SL, 11 km northeast of Port Stephens Lighthouse, New South Wales.

Description. Dorsal fin rays I+VIII+I-11 (I+VIII+I-10 or 11, 10 in one); anal fin rays 12; branched caudal fin rays 12 (11–13, usually 12 or 13, smallest specimen with 11 rays); pectoral fin rays 2 + 10 + 8 = 20 (2 or 3 + 10 – 12 + 6 to 8 = 19 or 20); pelvic fin rays I, 5; scales in lateral line 54 (53 or 54), anterior 6 (3–7) scales with spine; posteroventrally slanted oblique scale rows above lateral line 75 (71–78); anteroventrally slanted oblique scale rows above lateral line 84 (80–93); gill rakers 1 + 6 = 7 (1 + 5–8 = 6–9).

See table 1 for selected proportional measurements. Head length 2.6 (2.4–2.7) in SL. Snout rather robust, its length 3.2 in HL (3.1–3.3 in HL, ratio as % HL slightly decreasing proportionally with growth) (fig. 9). Iris lappet broad and simple dorsally, absent ventrally (rarely absent dorsally, and usually broad and simple ventrally) (fig. 5a). Interorbital width 14.1 (10.3–22.2) in HL. Nasal bone without distinct spines, but with tubercles (smallest specimen, 54.4 mm SL, with single spine

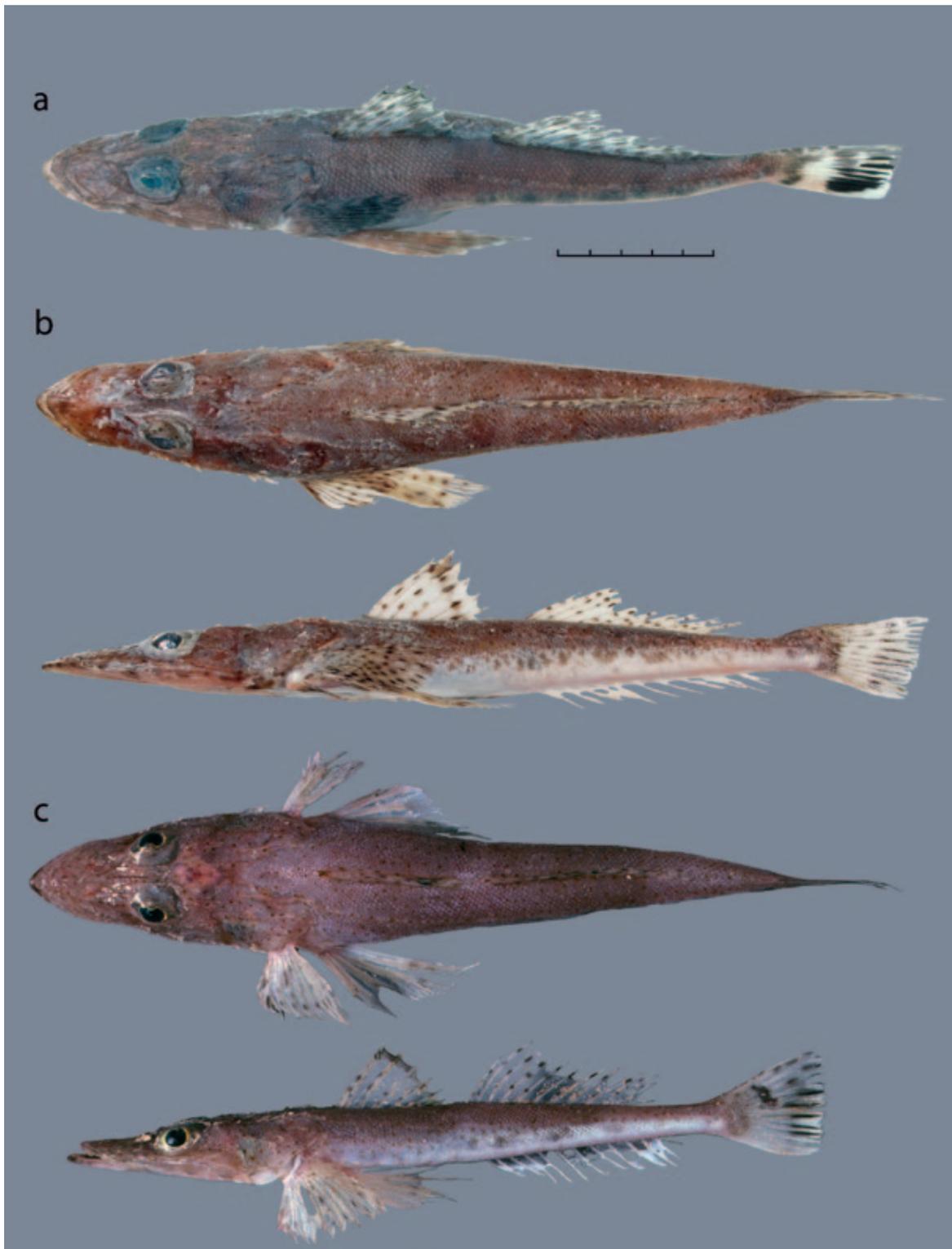


Figure 8. Three species of *Ratabulus*: a, *R. diversidens*, off Newcastle, New South Wales (33°08'S, 151°56'E), 125–130 m, 7 September 1978, specimen discarded, scale bar = 5 cm, photo by K. Graham; b, *R. megacephalus*, HUMZ 199844, 264 mm SL, East China Sea (26°35.68'N, 125°04.57'E – 26°36.73'N, 125°05.78'E), 192–186 m, 5 May 2007, photo by Hokkaido University; c, *R. fulviguttatus* sp. nov., upper specimen CSIRO H1505-15, 189 mm SL, lower specimen H1505-06, 219 mm SL, north of Nickol Bay, Western Australia (19°07'S, 117°06'E – 19°07'S, 117°04'E), 177–184 m depth, 5 October 1988, FRV *Soela*, photo by CSIRO.

and without tubercles) (fig. 4a). Lachrymal with four (2–7) anterolaterally directed spines. Single (rarely two) preocular spine in front of eye, its base with tubercles (with small spines, or without small spines and tubercles in several specimens). Suborbital ridge roughly serrated by many small to large spines; anteriormost (preorbital) spine small (rarely absent). Supraorbital ridge serrated, except anteriorly. Single postocular spine present. Pterotic with serrated ridge ending in strong spine. Parietal with single spine, followed posteriorly by three small spines on left side and four on right (by 1–5 spines). Supratemporal with serrated ridge (with serrated or smooth ridge) ending in spine. Posttemporal with two spines on left side and one on right (with 1–4 spines, usually one). Preopercle with three (two or three) spines; uppermost longest, not reaching posterior margin of opercle, bearing two small spines on left side and one on right on base laterally (usually one). Ridge of lower opercular spine smooth on left side and serrated on right. Posterior end of maxilla below anterior margin of eye (just beyond it in several specimens). Anterior part of upper jaw with conical teeth (short canines in several specimens) anteriorly, followed by long, slender canines; middle and posterior parts of upper jaw with villiform teeth, but innermost row with small, slender conical teeth. Lower jaw with narrow tooth band containing small conical teeth anteriorly, becoming smaller posteriorly, followed by villiform teeth at end of jaw; innermost row conical (conical teeth to moderately long canines). Palatine with moderately broad tooth band; anterior part of palatine with short canines laterally and moderately long canines mesially (moderate to long and slender canines mesially); posterior part of palatine with small conical teeth. Vomer with about four (about three or four) tooth rows centrally; anterior part of vomer with small conical teeth, middle and posterior parts with moderate to long and slender canines. Posterior margin of caudal fin mostly straight (rarely slightly concave); caudal fin length 5.6 (4.8–6.1) in SL. Pectoral fin length 7.0 (6.3–7.2) in SL. Posterior tip of pelvic fin reaching second (first to third) anal fin ray; pelvic fin length 4.0 (3.5–4.5) in SL.

Color in alcohol (lectotype, fig. 7). Head and body mostly faded. First dorsal fin with dark brown submarginal stripe; second dorsal with scattered small dark brown spots. Caudal fin with five longitudinal black stripes along fin membranes posteriorly. Upper part of pectoral fin with about two dark brown bands. Pelvic fin with large dark-brown spots posteriorly.

Other specimens with head and body pale to dark-brown dorsally, pale yellow ventrally; dorsal surface of head with large irregular pale to dark-brown spots; body without spots, but sometimes with several narrow dark-brown bands dorsally, side with longitudinal stripe formed by continuous gray spots below lateral line. First dorsal fin with dark brown to black submarginal stripe, base clear anteriorly, with scattered small dark brown to black spots; second dorsal with dark brown spots. Anal fin pale or with melanophores along rays. Caudal fin with 4–6 narrow black longitudinal stripes posteriorly; lower stripes tending to merge in some specimens; upper part of fin with several brown spots. Pectoral fin with small dark-brown spots tending to form bands. Pelvic fin with large brown spots (fig. 6a).

Color when fresh based on photograph (fig. 8a). Similar to those in alcohol.

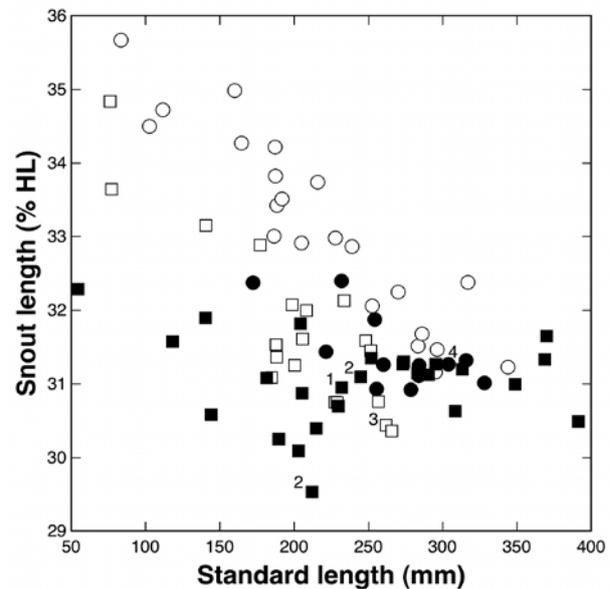


Figure 9. Comparison of snout length (% HL) with standard length (mm) in specimens examined of four species of *Ratabulus*; solid square, *R. diversidens*; open circle, *R. megacephalus*; open square, *R. fulviguttatus* sp. nov.; solid circle, *R. ventralis* sp. nov.; 1, lectotype of *R. diversidens*; 2, two paralectotypes of *R. diversidens*; 3, holotype of *R. fulviguttatus*; 4, holotype of *R. ventralis*.

Distribution. Eastern Australia from Townsville, Queensland (17°51'S) to Lakes Entrance, Victoria (38°17'52'S), recorded at depths of at least 30–345 m (McCulloch, 1914; Paxton et al., 1989) (fig. 1).

Remarks. *Ratabulus diversidens* is easily separable from *R. megacephalus* and *R. fulviguttatus* in having 80–93 anteroventrally slanted oblique scale rows above the lateral line (versus 94–112 in *R. megacephalus* and 99–113 in *R. fulviguttatus*), the snout length 29.5–32.3% HL, becoming slightly shorter proportionally with growth (versus 31.2–35.7% HL in *R. megacephalus* and 30.4–34.8% HL in *R. fulviguttatus*) (fig. 9), nasal bone with tubercles in larger specimens (versus lacking tubercles in *R. megacephalus* and *R. fulviguttatus*) (fig. 4), the dorsal surface of the head with large, irregularly shaped, pale to dark-brown spots, the body without spots dorsally (versus dorsal surface of head and body with small, round, pale or dark-brown spots in *R. megacephalus* and *R. fulviguttatus*) (fig. 3). *R. diversidens* resembles *R. ventralis* in having tubercles on the nasal bone, but differs from it in having a shorter pectoral fin (13.9–15.8% SL in *R. diversidens* versus 15.8–18.6% SL in *R. ventralis*) (fig. 10) and large, irregular spots on the head (versus a head with small, round, brown spots in *R. ventralis*) (fig. 3). This species can be separated from the other three by the large brown spots on its pelvic fin (versus having small spots) (fig. 6).

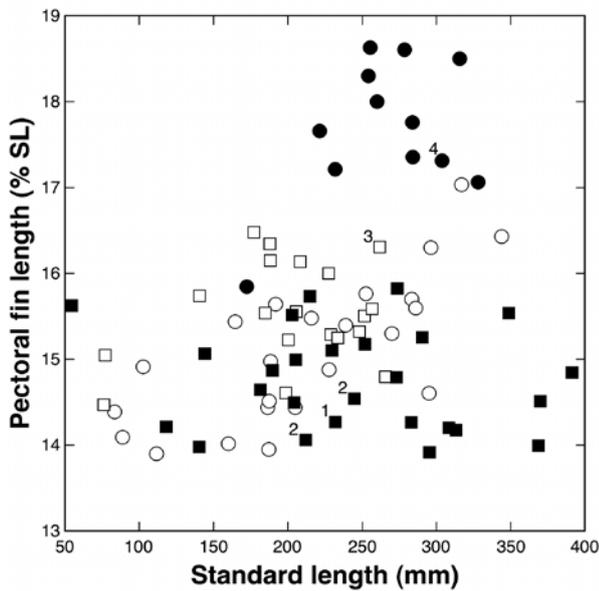


Figure 10. Comparison of pectoral fin length (% SL) with standard length (mm) in specimens examined of four species of *Ratabulus*: solid square, *R. diversidens*; open circle, *R. megacephalus*; open square, *R. fulviguttatus* sp. nov.; solid circle, *R. ventralis* sp. nov.; 1, lectotype of *R. diversidens*; 2, two paralectotypes of *R. diversidens*; 3, holotype of *R. fulviguttatus*; 4, holotype of *R. ventralis*.

McCulloch (1914) recorded the collection locality of the type specimens of *R. diversidens* as 'seven miles S. 21°W. off Port Stephens Lighthouse, New South Wales', but data with the specimens indicate they were captured 11 km northeast of Port Stephens Lighthouse (S. Reader, pers. comm., 16 May 2006).

Ratabulus megacephalus (Tanaka, 1917)

Japanese name: Haname-gochi

(Figures 2b, 3b, 4b, 5b, 6b, 8b)

Thysanophrys megacephalus Tanaka, 1917: 11 (original description, fish market in Tokyo); Tanaka, 1931: 37 (list, Japan); Kamohara, 1952: 70 (list, Kochi, Japan).

Thysanophrys (Ratabulus) megacephalus: Kamohara, 1964: 77 (list, Kochi).

Ratabulus megacephalus: Jordan and Hubbs, 1925: 287 (English translation of original description published in Japanese); Okada and Matsubara, 1938: 334 (key and distribution, Tokyo to Kagoshima, Japan); Mori, 1952: 159 (list and distribution, Tongyeong, southern South Korea); Matsubara and Ochiai, 1955: 95, pl. 3 (description, southern Japan and East China Sea); Matsubara, 1955: 1122 (key, short description and distribution, Tokyo Bay, south from Kasumi, Hyogo Prefecture, Korea and East China Sea); Anonymous, 1962: 926, fig. 730 (description, Hainan Island, South China Sea); Ochiai, 1984: 322, pl. 289-E (short description and distribution, southern Japan to East China Sea); Yatou, 1985: 599, 729, pl. 371 (description and distribution, Okinawa Trough); Shao and Chen, 1987: 86, fig. 20 (short description, Taiwan); Shao and Chen, 1993: 258, pl. 65-4 (short description,

Taiwan); Imamura, 1996: 207, fig. 62 (list); Imamura, 1997: 220, fig. 5 in 221 page (short description); Lee and Joo, 1998: 220, fig. 4 (description, Pusan); Knapp, 2000: 608 (list, South China Sea); Nakabo, 2002: 618, unnumbered figs (pictorial key and limited meristic values, Pacific coast of southern Japan and East China Sea); Shinohara et al., 2001: 318 (list, Tosa Bay, Japan); Youn, 2002: 259, 570, unnumbered fig. (pictorial key, Tongyeong, southern South Korea); Kim et al., 2005: 237, unnumbered fig. (short description, Tongyeong, southern South Korea).

Ratabulus diversidens (nec McCulloch, 1914): Knapp, 1999: 2410 (description, East and South China seas and northern Philippines) (in part).

Nontypes (location of holotype unknown, Eschmeyer et al., 1998). Twenty-three specimens (83.4–344 mm SL), Northwest Pacific. BSKU 9503, 186 mm SL, fish market, Mimase, Kochi Prefecture, 1 December 1950; BSKU 36141, 192 mm SL, fish market, Mimase, Kochi Prefecture, 9 December 1981; BSKU 36270, 228 mm SL, fish market, Mimase, Kochi Prefecture, 26 January 1982; BSKU 51453, 205 mm SL, fish market, Mimase, Kochi Prefecture, 9 April 2000; BSKU 52257, 160 mm SL, Irino fishing port, Hata-gun, Kochi Prefecture, 10 August 2000; BSKU 54460, 252 mm SL, fish market, Mimase, Kochi Prefecture, 24 November 2000; BSKU 59497, 83.4 mm SL, Irino fishing port, Hata-gun, Kochi Prefecture, 18 March 2002; BSKU 63578, 188 mm SL, Saga fishing port, Hata-gun, Kochi Prefecture, 20 November 2002; BSKU 73629, 88.7 mm SL, Irino fishing port, Hata-gun, Kochi Prefecture, 5 April 2002; BSKU 85012, 164 mm SL, Tosa Bay, Kochi Prefecture, 125 m depth, 30 September 1997, R/V *Kotakamaru*; BSKU 87405, 216 mm SL, fish market, Mimase, Kochi Prefecture, 30 March 2000; FAKU 12168, 270 mm SL, East China Sea, February 1949, K. Matsubara and R. Ishiyama; FAKU 14957, 14959–14960, 3: 283–295 mm SL, Maisaka, Shizuoka Prefecture; HUMZ 37397, 111 mm SL, no collection data (perhaps Kochi Prefecture); HUMZ 49396, 187 mm SL, fish market, Mimase, Kochi Prefecture, 15 November 1975; HUMZ 49470, 187 mm SL, fish market, Mimase, Kochi Prefecture, 17 November 1975; HUMZ 200048, 344 mm SL, East China Sea (27°06.31'N, 125°47.32'E – 27°06.11'N, 125°46.24'E), 192–186 m, 2 June 2007; HUMZ 200050, 296 mm SL, collaboration with HUMZ 200048; NSMT-P 828, 103 mm SL, Enoura, Izu Peninsula, Shizuoka Prefecture (35°03'N, 138°54'E); USNM 329510, 239 mm SL, South China Sea (19°06'30"N, 112°23'E), 203–218 m, 22 July 1958; USNM 383571, 370 mm SL, fish market, Bolinao, Luzon, Philippines, 7–9 October 1995.

Other material. One specimen. HUMZ 199844, 264 mm SL, East China Sea (26°35.68'N, 125°04.57'E – 26°36.73'N, 125°05.78'E), 192–186 m, 5 May 2007 (used for description of color when fresh).

Diagnosis. A species of *Ratabulus* with 94–112 anteroventrally slanted oblique scale rows above lateral line; snout length 31.2–35.7% HL, markedly decreasing in length proportionally with growth; pectoral fin length 13.9–17.0% SL; pelvic fin length 19.5–23.1% SL; nasal bone without tubercles; dorsal surface of head and body dark brown, with small, round, dark-brown spots; and pelvic fin with small brown to black spots.

Description. Dorsal fin rays I + VIII + I-11 or 12 or I + IX + 0-11 (I + IX + 0-11 in one, I + VIII + I-12 in one); anal fin rays 12; pectoral fin rays two or three (usually two) + 9–11 + 6–8 = 19 or 20; pelvic fin rays I, 5; branched caudal fin rays 12 or 13; scales in lateral line 53–55, anterior three or four scales with spine; posteroventrally slanted oblique scale rows above lateral line 71–78; anteroventrally slanted oblique scale rows above lateral line 94–112; gill rakers 1 + 6–8 = 7–9.

See table 1 for selected proportional measurements. Head length 2.4–2.7 in SL. Snout rather long, its length 2.8–3.2 in HL, ratio as %HL markedly decreasing proportionally with growth (fig. 9). Iris lappet broad and simple dorsally and absent ventrally (fig. 5b). Interorbital width 12.8–19.6 in HL. Nasal bone with 0–2 spines, and without tubercles (fig. 4b). Lachrymal with 2–4 spines directed anterolaterally. Preocular spine in front of eye, its base without spines or tubercles. Suborbital ridge with many small to large spines; anteriormost (preorbital) spine usually present. Supraorbital ridge serrated medially and posteriorly or just posteriorly. Postocular spine present. Pterotic ridge with 1–3 spines. Parietal with single spine, followed posteriorly by 0–2 additional spines. Supratemporal usually with a spine, rarely with two. Posttemporal with one or two spines. Preopercle with two or three spines; uppermost longest, not reaching posterior margin of opercle, bearing one small spine on base laterally. Ridge of lower opercular spine without serrations. Posterior end of maxilla below anterior margin of eye or just posterior to it. Anterior part of upper jaw with conical or small canine teeth in front of long, slender canines, followed by villiform teeth, innermost row with small, slender conical teeth. Lower jaw with narrow band of small conical teeth anteriorly, smallest teeth posteriorly, followed by villiform teeth, innermost a row of moderately long canines. Palatine with moderately broad tooth band; those anterolaterally canines of short to moderate length with moderate to long and slender canines mesially; posterior part of palatine with small conical teeth. Vomer with about 2–5 tooth rows medially; anterior teeth conical or short canines, those medially and posteriorly slender canines of moderate length. Posterior margin of caudal fin mostly straight, slightly concave or slightly rounded in some; caudal fin length 5.2–6.0. Pectoral fin length 5.9–7.2 in SL. Posterior tip of pelvic fin not reaching anal fin origin; pelvic fin length 4.3–5.1 in SL.

Color in alcohol. Head and body dark brown dorsally, pale yellowish ventrally. Dorsal surfaces of head and body with small, round, dark-brown spots; body usually without bands dorsally, but occasionally with indistinct darker bands; longitudinal stripe formed by continuous series of gray spots on side below lateral line. First dorsal fin with dark brown to black submarginal stripe, base clear anteriorly with scattered small dark-brown to black spots; second dorsal with brown to black spots. Anal fin with melanophores along rays. Caudal fin with 5–9 narrow longitudinal black stripes posteriorly; several dark-brown to black spots anteriorly and dorsally. Pectoral and pelvic fins with small dark-brown to black spots (fig. 6b).

Color when fresh from photographs of HUMZ 199844 (fig. 8b). Similar to those in alcohol.

Distribution. East and South China seas, and Northwest Pacific, including southern Japan, Korea, Taiwan, Hainan Island and northern Philippines, at depths of 192–218 m (Anonymous, 1962; Ochiai, 1984; Shao and Chen, 1987, 1993; Knapp, 1999; Kim et al., 2005) (fig. 1).

Remarks. *R. megacephalus* is most similar to *R. fulviguttatus* in having the nasal bone devoid of tubercles (versus tubercles present in *R. diversidens* and *R. ventralis*) (fig. 4) and the dorsal surface of the body with small, round spots (versus without

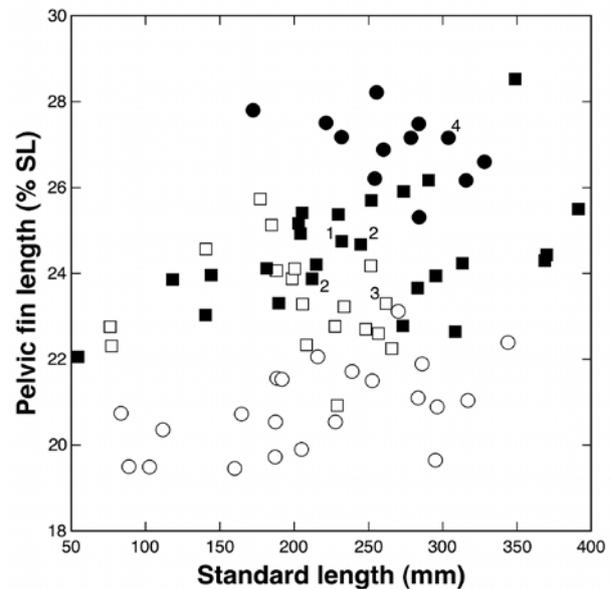


Figure 11. Comparison of pelvic fin length (% SL) with standard length (mm) in specimens examined of four species of *Ratabulus*: solid square, *R. diversidens*; open circle, *R. megacephalus*; open square, *R. fulviguttatus* sp. nov.; solid circle, *R. ventralis* sp. nov.; 1, lectotype of *R. diversidens*; 2, two paralectotypes of *R. diversidens*; 3, holotype of *R. fulviguttatus*; 4, holotype of *R. ventralis*.

spots) (fig. 2). *R. megacephalus* differs from *R. fulviguttatus* in having a proportionally longer snout (31.2–35.7% HL in *R. megacephalus* versus 30.4–34.8% HL in *R. fulviguttatus*) and shorter pectoral fins (13.9–17.0% SL compared to 14.6–16.5% SL) (figs 9–10) at comparable sizes, and the dorsal surface of the head and body dark brown (versus pale brown) (fig. 2). *R. megacephalus* is also separable from *R. ventralis* in having shorter pectoral fins (13.9–17.0% SL versus 15.8–18.6% SL) and pelvic fins (19.5–23.1% SL versus 25.3–28.2% SL) (figs 10–11).

Sadovy and Cornish (2000) reported *Ratabulus megacephalus* from Hong Kong, but their photograph depicts a specimen of *Inegocia ochiaii* Imamura, 2010, previously known incorrectly as '*Inegocia guttata*' (e.g. Matsubara and Ochiai, 1955; Ochiai, 1984), a species that has an interopercular flap, and a long and branched iris lappet.

Ratabulus fulviguttatus sp. nov.

English name: Orangefreckled flathead

(Figures 2c, 3c, 4c, 5c, 6c, 8c)

Ratabulus diversidens (nec McCulloch, 1914): Gloerfelt-Tarp and Kailola, 1984: 123, unnumbered fig. (short description, northwestern Australia); Sainsbury et al., 1985: 114, unnumbered fig. (description, northwestern Australia); Paxton et al., 1989: 470 (list and distribution, Northwestern Shelf, Australia) (in part); Knapp, 1999: 2410 (description, Northwestern Shelf and Timor Sea) (in part); Hutchins, 2001: 28 (list, Western Australia); Hoese et al., 2006: 944 (list and distribution, off North West Cape to off Port Hedland, Western Australia) (in part).

Holotype. CSIRO H4031-79, 262 mm SL, north of Cape Lambert, Western Australia (18°57'S, 117°14'E), 248 m, 30 August 1995, FRV *Southern Surveyor*.

Paratypes. 16 specimens (140–266 mm SL), from northwestern Australia. AMS I.21621-006, 206 mm SL, northwest shelf, Western Australia (11°49'S, 124°17'E), 195–200 m, 10 June 1979; AMS I.22805-013, 3: 177–188 mm SL, 170 km north of Port Hedland, Western Australia (18°28'S, 118°15'E), 150–156 m, 28 March 1982, FRV *Soela*; AMS I.22807-023, 3: 188–227 mm SL, 175 km north of Port Hedland, Western Australia (18°32'S, 118°17'E), 200–204 m, 2 April 1982, FRV *Soela*; AMS I.22828-012, 3: 248–265 mm SL, 190 km north of Port Hedland, Western Australia (19°01'S, 117°12'E), 200–202 m, 14 April 1982, FRV *Soela*; CSIRO CA3624 (voucher of Sainsbury et al., 1985), 233 mm SL, northwest of Nichol Bay, Western Australia (19°15'S, 116°40'E), 172 m, 25 January 1983, FRV *Soela*; CSIRO CA4091, 229 mm SL, north of Bathurst Island, Arafura Sea, Northern Territory (10°02'S, 130°01'E), 216 m, 8 July 1980; CSIRO H1035-23, 251 mm SL, north of Dampier Archipelago, Western Australia (19°08'S, 116°54'E), 196 m, 24 October 1996, FRV *Soela*; CSIRO H1512-04, 140 mm SL, north of Monte Bello Islands, Western Australia (19°39'S, 115°36'E), 180 m, 11 October 1988, FRV *Soela*; CSIRO H4031-79, 262 mm SL, north of Cape Lambert, Western Australia (18°57'S, 117°14'E), 248 m, 30 August 1995, FRV *Southern Surveyor*; CSIRO H4631-03, 198 mm SL, north of Dampier Archipelago, Western Australia (19°11'S, 116°35'E), 196 m, 11 August 1997, FRV *Southern Surveyor*; WAM P.32204-001, 208 mm SL, Western Australia, Timor Sea (12°57'S, 124°20'E), 8 June 1979.

Nontypes. Two specimens. WAM P.9351-001, 76.0 mm SL, Western Australia (21°49'S, 113°56'E), 121–126 m, 1 February 1964; WAM P. 9352-001, 77.1 mm SL, coll. with WAM P.9351-001.

Other material. Two specimens. CSIRO H1505-06, 219 mm SL, north of Nickol Bay, Western Australia (19°07'S, 117°06'E – 19°07'S, 117°04'E), 177–184 m, 5 October 1988, FRV *Soela*; CSIRO H1505-06, 189 mm SL, collected with CSIRO H1505-06 (used for description of color when fresh).

Diagnosis. A species of *Ratabulus* with 99–113 anteroventrally slanted oblique scale rows above lateral line; snout length 30.4–34.8% HL, markedly decreasing proportionally with growth; pectoral fin length 14.6–16.5% SL; pelvic fin length 20.9–25.7% SL; nasal bone without tubercles; dorsal surface of head and body pale brown, with small, round brown spots; and pelvic fin with small brown spots.

Description. Dorsal fin rays I + VIII + I-11 (I + VII to IX + I-11 or 12, VII in one and IX in one, 12 in one); anal fin rays 12 (11 or 12, 11 in one); pectoral fin rays 2 + 12 + 6 = 20 (1 or 2 + 9–12 + 6–8 = 19–21, usually 20); pelvic fin rays I, 5; branched caudal fin rays 13; scales in lateral line 56 (54–56), anterior three (three or four) scales with spine; posteroventrally slanted oblique scale rows above lateral line 80 (71–80); anteroventrally slanted oblique scale rows above lateral line 107 (99–113); gill rakers 1 + 7 = 8 (1 + 6–8 = 7–9, usually 7).

See table 1 for selected proportional measurements. Head length 2.6 (2.4–2.7) in SL. Snout rather slender, its length 3.3 (3.0–3.3) in HL, markedly decreasing proportionally with growth (fig. 9). Iris lappet broad and simple both dorsally and ventrally (fig. 5c). Interorbital width 16.3 (14.5–20.0) in HL. Nasal bone with small spine, but without tubercles (fig. 4C). Two spines on lachrymal of right side, three on left, spines directed anterolaterally. Single preocular spine in front of eye, its base without spines or tubercles (with tubercle on left side of one

paratype, CSIRO H4631-03). Suborbital ridge with many small to large spines, anteriormost (preorbital) distinct. Supraorbital ridge serrated except anteriorly. Single postocular spine present. Pterotic with one spine (one to four spines). Parietal with single spine, without accompanied spines posteriorly (followed by one or two spines in several paratypes). Supratemporal with one spine (two to three spines in several paratypes). Posttemporal with one spine. Preopercle with two spines (three in several paratypes); upper longer, not reaching posterior margin of opercle, bearing one small spine on base laterally (rarely two spines or spines absent). Ridge of lower opercular spine without serrations. Posterior end of maxilla below anterior margin of pupil (not reaching to anterior margin of pupil in several paratypes). Anterior part of upper jaw with short canines at front, followed by long and slender canines posteriorly; middle and posterior parts of upper jaw with villiform teeth, innermost row comprising small, slender, conical teeth. Lower jaw with two tooth rows (one to about three rows); outer row with moderately long conical teeth anteriorly, and two rows of villiform teeth anterolaterally (outer one to two rows of villiform teeth, or small to moderately long conical teeth), teeth becoming smaller posteriorly, teeth villiform posteriorly; inner row with conical teeth (canines of small to moderate size in several paratypes). Palatine with moderately broad tooth band; anterior part of palatine with canines of moderate length (long canines in several paratypes) laterally, and long and slender canines mesially; posterior part of palatine with small to moderately long conical teeth. Vomer with about three tooth rows medially (with two to four rows), small canines anteriorly (canines of moderate length in several paratypes), followed by long, slender canines. Posterior margin of caudal fin slightly concave (mostly straight in several paratypes); fin length 6.0 (5.0–6.2) in SL. Pectoral fin length 6.1 (6.1–6.8) in SL. Posterior tip of pelvic fin not reaching anal fin origin (just reaching anal fin origin or just beyond it in several paratypes); pelvic fin length 4.3 (3.9–4.5) in SL.

Color in alcohol. Head and body pale brown dorsally, pale yellowish ventrally; dorsal surface of head and body with small, round, brown spots, but no bands; lateral side of body below lateral line with pale purple longitudinal stripe (or stripe formed by continuous series of purple spots). First dorsal fin with one dark grayish submarginal stripe, basal area clear anteriorly with scattered small dark-brown spots; second dorsal fin with brown (or dark brown) spots. Anal fin pale. Caudal fin with many black longitudinal narrow stripes and spots posteriorly; upper part of fin with several brown spots. Pectoral fin slightly dusky, with small brown spots. Pelvic fin mostly faded on left side, with few small indistinct brown spots on right (with several small distinct brown spots in several paratypes) (fig. 6c).

Color when fresh from photographs of CSIRO H505-15 and H505-16 (fig. 8c). Head and body with small, round, reddish brown and brown spots dorsally. Body with two broad brown bands dorsally. Other colors similar to those in alcohol.

Distribution. Northwestern Australia, from North West Cape, Western Australia (21°49'S) to Bathurst Island, Northern Territory (10°02'S), at depths of at least 126–248 m (Sainsbury et al., 1985; Paxton et al., 1989) (fig. 1).

Etymology. The specific name *fulviguttatus*, from the Latin word meaning 'orange or brown spots', refers to this species' characteristic spots on the head and body.

Remarks. *R. fulviguttatus* differs from *R. ventralis* in having the nasal bone without tubercles (versus with tubercles) (fig. 4), shorter pelvic fins (20.9–25.7% SL versus 25.3–28.2% SL) (fig. 11), and body with small, round, brown spots (versus without spots) (fig. 2). It is easily separable from *R. diversidens*, with which it has been confused, by the small, round, brown spots scattered over the dorsal surface of the head and body (versus without spots). The spots in *R. fulviguttatus* are reddish and/or brown when fresh, which explains the Australian standard name. The character is clearly evident in colour photos and description provided by Gloerfelt-Tarp and Kailola (1984) and Sainsbury et al. (1985).

***Ratabulus ventralis* sp. nov.**

New English name: Longfin flathead

(Figures 2d, 3d, 4d, 5d, 6d)

Ratabulus diversidens (nec McCulloch, 1914): Paxton et al., 1989: 470 (list and distribution, off Brisbane) (in part); Knapp, 1999: 2410 (description, Coral Sea) (in part); Hoese et al., 2006: 944 (list and distribution, off Brisbane) (in part).

Holotype. CSIRO H6116-02, 304 mm SL, east of Townsville, Queensland (18°39.3'S, 148°03.4'E – 18°36.4'S, 147°59.5'E), 244–248 m, 8 December 1985, FRV *Soela*.

Paratypes. Eleven specimens (172–328 mm SL) from Queensland, northeastern Australia. AMS I.25804-019, 278 mm SL, just north of Townsville (17°51'S, 147°01'E), 260 m, 9 January 1986, FRV *Soela*; AMS I.25823-002, 328 mm SL, north of Townsville (17°58'S, 147°02'E), 260 m, 16 January 1986, FRV *Soela*; AMS I.25832-007-006, 284 mm SL, north of Townsville (17°58'S, 147°03'E), 260 m, 19 January 1986, FRV *Soela*; CSIRO H690-03, 232 mm SL, Swain Reefs (21°31'S, 152°58'E), 247 m, 20 November 1985, FRV *Soela*; QM I.18546, 284 mm SL, off Swain Reefs (22.54°S, 152.12°E – 22.59°S, 152.12°E), 347–384 m, 3 October 1980; QM I.19276, 255 mm SL, east of Capricorn Group (23.11°S, 153.00°E – 23.01°S, 152.55°E), 366–392 m, 20 September 1980; QM I.20934, 254 mm SL, east of Swain Reefs (22.03°S, 153.05°E), 170 m, 28 August 1983; QM I.20939, 316 mm SL, east of Bunker Group (23.59°S, 152.51°E), 340 m, 27 August 1983; QM I.21624, 221 mm SL, southeast of Swain Reefs (22.4°S, 153.35°E), 310 m, 6 September 1983; QM I.23088, 260 mm SL, off Swain Reefs (20.49°S, 151.52°E), 288 m, 20 September 1986; QM I.34327, 172 mm SL, east of Noosa (26.25°S, 153.4°E), 119–120 m, 19 July 2002.

Diagnosis. A species of *Ratabulus* with 91–104 anteroventrally slanted oblique scale rows above lateral line; snout length 30.9–32.4% HL, markedly decreasing proportionally with growth; pectoral fin length 15.8–18.6% SL; pelvic fin length 26.2–28.2% SL; nasal bone with tubercles; dorsal surface of head with small, round, brown spots, body without dark spots; pelvic fin with small brown spots.

Description. Dorsal fin rays I + VIII + I-11 (I + VII or VIII + I-11, or I + IX + 0-11, VII in one, IX in one); anal fin rays 12; pectoral fin rays 2 + 11 + 7 = 20 (2 + 10 or 11 + 6–9 = 19–21); pelvic fin rays I, 5; branched caudal fin rays 13 (12 or 13); scales in lateral line 55 (52–55), anterior four (3–5) scales with spine;

posteroventrally slanted oblique scale rows above lateral line 83 (71–76); anteroventrally slanted oblique scale rows above lateral line 98 (91–104); gill rakers 1 + 7 = 8 (1 + 7 or 8 = 8 or 9).

See table 1 for selected proportional measurements. Head length 2.7 (2.4–2.6) in SL. Snout rather robust, its length 3.2 in HL (3.1–3.2 in HL, slightly decreasing proportionally with growth, fig. 9). Iris lappet broad and simple both dorsally and ventrally (fig. 5d). Interorbital width 13.9 (12.5–16.7) in HL. Nasal bone without distinct spines, but with tubercles (fig. 4d). Lachrymal with three anterolaterally directed spines on left side, right side partly damaged (2–5, with short serrations posterior to spines in some paratypes). Single preocular spine in front of eye, its base with tubercles (with small spines in several paratypes). Suborbital ridge roughly serrated by many small to large spines; anteriormost (preorbital) spine small. Supraorbital ridge serrated except anteriorly. Single postocular spine present. Pterotic with serrated ridge ending in strong spine. Parietal with single spine, lacking spines posteriorly (with small spines or tubercles in many paratypes). Supratemporal with smooth ridge (with serrated ridge in many paratypes) ending in spine. Posttemporal with one spine (usually with 1–3, rarely with serrated ridge ending in one spine). Preopercle with two (two or three) spines; upper longer, not reaching posterior margin of opercle, with one small spine on base laterally. Ridge of lower opercular spine without serrations (with weak serrations or with spine in some paratypes). Posterior end of maxilla reaching just beyond anterior margin of eye. Front of upper jaw with short canines (with conical teeth in some paratypes) anteriorly, followed by long and slender canines; middle and posterior parts of jaw with villiform teeth, one or two inner rows (innermost row) having small, slender conical teeth. Lower jaw with narrow tooth band of small conical teeth anteriorly, teeth smaller posteriorly, followed by villiform teeth; innermost row with short to moderately long (short to long and slender) canines. Palatine with moderately broad tooth band; anterior part with moderately long (short to moderately long) canines laterally, and long, slender (moderately long to long and slender) canines mesially; posterior part with moderately long to long conical teeth. Vomer with about three (about 3–5) tooth rows medially; short canines anteriorly, followed by long, slender canines. Posterior margin of caudal fin slightly concave (mostly straight in some paratypes); caudal fin length 6.0 (5.3–6.0) in SL. Pectoral fin length 5.8 (5.4–6.3) in SL. Posterior tip of pelvic fin reaching second (third to fourth) anal fin ray; pelvic fin length 3.7 (3.5–3.8) in SL.

Color in alcohol. Head and body pale brown dorsally, pale yellowish ventrally; dorsal surface of head with small, round, brown spots; body without spots and bands dorsally; side below lateral line with one pale grayish longitudinal stripe (grayish stripe formed by continuous series of spots in some paratypes). First dorsal fin with one blackish submarginal stripe, base clear anteriorly with small scattered black spots; second dorsal fin with brown (dark brown in some paratypes) spots. Anal fin pale. Caudal fin with several black longitudinal narrow stripes and spots posteriorly; upper part of caudal fin with several brown spots. Pectoral and pelvic fins with small brown spots (fig. 6d).

Distribution. Northeastern Australia from Townsville (17°51'S) to Noosa, Queensland (26.25°S), at depths of at least 120–366 m (fig. 1).

Etymology. The specific name *ventralis* from Latin, meaning ‘of the belly’, refers to this species’ characteristic long pelvic fin.

Remarks. *R. ventralis* is most similar to *R. diversidens*, from which it can be distinguished as discussed in ‘Remarks’ in the above treatment of the latter. This species is poorly represented in museum collections and has been mostly overlooked in the literature. It has been considered by authors, which have treated specimens, as simply northern records of *R. diversidens*.

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