

## Redescription of *Vanderhorstia macropteryx* (Perciformes: Gobiidae) with Designation of a Neotype

Yuji Ikeda,<sup>1</sup> Tetsuji Nakabo<sup>2</sup> and Wataru Hiramatsu<sup>3</sup>

<sup>1</sup>Imperial Household, 1–1 Chiyoda, Chiyoda-ku, Tokyo 100, Japan

<sup>2</sup>Department of Fisheries, Faculty of Agriculture, Kyoto University,  
Kitashirakawa-Oiwake-cho, Sakyo-ku, Kyoto 606–01, Japan

<sup>3</sup>4–22–20 Takinoi, Funabashi-shi, Chiba 274, Japan

(Received June 10, 1995; in revised form August 17, 1995; accepted October 2, 1995)

**Abstract** A rare gobiid fish, *Vanderhorstia macropteryx*, is redescribed, based on a newly-designated neotype and 11 other specimens collected from southern Japan. The species is characterized by 7–18 predorsal scales, a longitudinal yellow line on the middle of the cheek, an orange line on the membrane above the maxilla, an oblique yellow line on the occiput behind the eye, many yellow spots on the first and second dorsal fins and upper halves of the caudal fin and body, and 3 yellow transverse lines plus 4 obscure brown blotches on flank. The species which is associated with snapping shrimps.

During research on gobiid fishes at Atami, Shizuoka Prefecture, using SCUBA, four specimens *Vanderhorstia macropteryx* were collected. Originally described by Franz (1910) from two syntypes collected off Zushi, Kanagawa Prefecture, Japan, *V. macropteryx* has been rarely collected since, with only a single, subsequent record (Tomiya, 1936), based on a single specimen.

The original description of the species was poor. The two syntypes, kept at Zoologische Staatssammlung, Munich, were later destroyed by an air raid during World War II on April 25, 1944 (by F. Terofal, pers. comm.). Tomiyama (1936) gave a figure of a specimen with broken first dorsal and anal fins, but did not include a description of its morphological characters.

In addition to the four specimens collected from Atami, eight further specimens (including that figured by Tomiyama [1936]) collected from the coasts of southern Japan were located in museum collections. *V. macropteryx* is redescribed on the basis of these, and a neotype is designated to stabilize the nomenclature. Some ecological aspects of the species are also included.

### Methods

The methods of counts and measurements followed Hubbs and Lagler (1958) and Iwata et al.

(1985). Terminology of the cephalic lateral line system and the method of expressing the relationship between the dorsal fin pterygiophores and vertebrae followed Akihito (1984a). Vertebrae were counted from soft X-ray negatives. Cephalic sensory pores and pit organs were observed by staining with cyanin. Counts are shown in Table 1 and proportional measurements in Table 2.

The following abbreviations are used in the text: BLIH, Biological Laboratory, Imperial Household; BSKU, Department of Biology, Faculty of Science, Kochi University; FAKU, Faculty of Agriculture, Kyoto University; HUMZ, Laboratory of Marine Zoology, Faculty of Fisheries, Hokkaido University; IOP, Izu Oceanic Park; NSMT, National Science Museum, Tokyo; ZUMT, Department of Zoology, University Museum, University of Tokyo; D, dorsal fins; A, anal fin; P1, pectoral fin; P2, pelvic fin; LR, lateral scale rows; TR, transverse scale rows; Pred.S, predorsal scales; V, vertebral counts.

*Vanderhorstia macropteryx* (Franz, 1910)

(Japanese name: Hirenaga-haze)

(Figs. 1, 2; Tables 1, 2)

*Ctenogobius macropteryx* Franz, 1910: 9, pl. VI, fig. 45  
(type locality, Zushi, Kanagawa Pref., Japan).

*Gobius macropteryx*: Tomiyama, 1936: 65, fig. 19 (Shizuura, Shizuoka Pref., Japan); Okada and Matsubara, 1938: 366 (key).

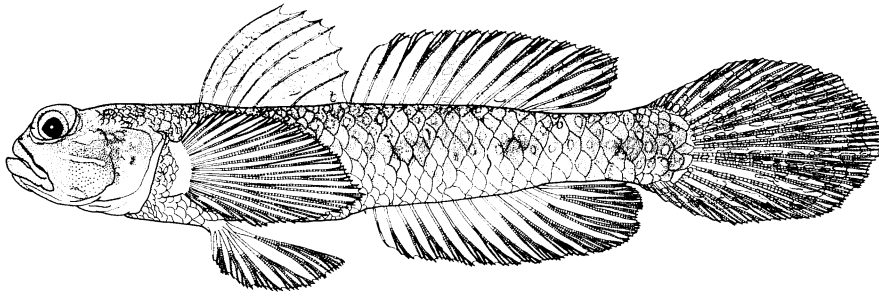


Fig. 1. *Vanderhorstia macropteryx*, neotype, NSMT-P 46608, 80.6 mm SL.

*Rhinogobius macropteryx*: Jordan et al., 1913: 343 (after Franz, 1910); Matsubara, 1955: 830 (key); Tominaga and Uyeno, 1981: 542 (listed).

*Vanderhorstia macropteryx*: Ikeda et al., 1993: 1, color photo (Atami, Shizuoka Pref., Japan); Akihito, Iwata, Sakamoto and Ikeda, 1993: 1068, 1356 (pictorial keys).

**Neotype.** NSMT-P 46608, male, 80.6 mm SL, 35°05'14''N, 139°05'15''E, off Atami Port, Atami-shi, Shizuoka Pref., Japan, 39 m depth, 13 Dec. 1992, coll. W. Hiramatsu.

**Nontype material.** BLIH 1992262, male, 58.8 mm SL, same data as neotype; BLIH 1993003, female, 32.6 mm SL, same locality as neotype, 35 m depth, 31 Jan. 1993, coll. W. Hiramatsu; BLIH 1993024, female, 50.0 mm SL, same locality as neotype, 33 m, 21 Nov. 1993, coll. W. Hiramatsu; BSKU 43848, female, 54.6 mm SL, 33°23'66''N, 133°33'04''E, Tosa Bay, 60 m, 7 July 1987, R/V *Toyohatamaru*; BSKU 46652, female, 73.2 mm SL, 33°24'43''N, 133°34'27''E, Tosa Bay, 110 m, 7 Aug. 1989, R/V *Toyohatamaru*; FAKU 55711, female, 30.2 mm SL, Hirado Island,

Table 1. Counts of *Vanderhorstia macropteryx*

Catalogue number	NSMT-P 46608 Neotype	BLIH 1992262	BLIH 1993003	BLIH 1993024	BSKU 43848	BSKU 46652
Standard length (mm)	80.6	58.8	32.6	50.0	54.6	73.2
Sex	male	male	female	female	female	female
Counts						
Dorsal fin rays	VI-I, 11	VI-I, 11	VI-I, 11	VI-I, 11	VI-I, 11	VI-I, 11
Anal fin rays	I, 12	I, 11	I, 11	I, 11	I, 11	I, 11
Pectoral fin rays	19	21	20	19	19	20
Pelvic fin rays	I, 5	I, 5	I, 5	I, 5	I, 5	I, 5
Segmented caudal fin rays	17	17	18	17	17	18
Lateral scale rows	31	34	34	33	35	34
Transverse scale rows	11	10	10	10	11	10
Predorsal scale rows	14	16	15	9	18	16
Vertebrae	10+16=26	10+16=26	10+16=26	10+16=26	10+16=26	10+16=26
Catalogue number	FAKU 55711	FAKU 55712	HUMZ 36304	IOP 3453	IOP 3454	ZUMT 30521
Standard length (mm)	30.2	68.7	61.5	54.4	54.5	46.3
Sex	female	female	male	female	male	male
Counts						
Dorsal fin rays	VI-I, 11	VI-I, 11	VI-I, 11	VI-I, 11	VI-I, 11	VI-I, 11
Anal fin rays	I, 11	I, 11	I, 11	I, 11	I, 11	I, 8
Pectoral fin rays	19	21	19	21	19	20
Pelvic fin rays	I, 5	I, 5	I, 5	I, 5	I, 5	I, 5
Segmented caudal fin rays	17	17	17	17	17	18
Lateral scale rows	30	34	—	39	32	33
Transverse scale rows	10	11	—	12	10	10
Predorsal scale rows	7	16	16	16	16	16
Vertebrae	10+16=26	10+16=26	10+16=26	10+16=26	10+16=26	10+16=26

Redescription of *Vanderhorstia macropteryx*

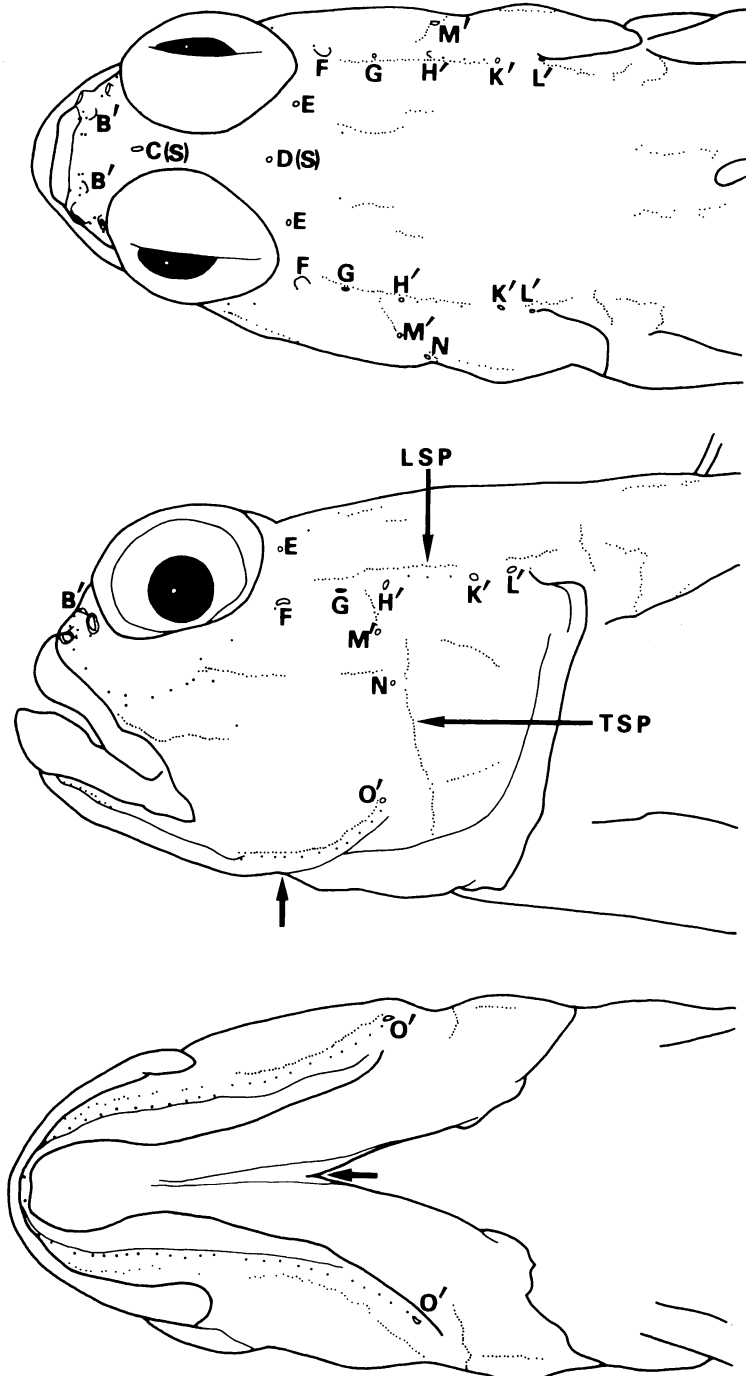


Fig. 2. Cephalic lateral line system of *Vanderhorstia macropteryx*, neotype. Dorsal, lateral and ventral views. *B'* to *H'* and *K'* to *O'*—sensory canal pores. Larger dots, indicate larger sensory papillae; smaller dots, smaller sensory papillae. *LSP*—longitudinal sensory papillae; *TSP*—transverse sensory papillae. The short arrow indicates the position at which the gill membranes are attached to the isthmus.

Table 2. Proportional measurements in hundredths of standard length of *Vanderhorstia macropteryx*

Catalogue number	NSMT-P 46608 Neotype	BLIH 1992262	BLIH 1993003	BLIH 1993024	BSKU 43848	BSKU 46652	FAKU 55711	FAKU 55712	HUMZ 36304	IOP 3453	IOP 3454	ZUMT 30521
Head length	25.5	27.8	28.5	26.4	26.7	27.2	29.3	26.8	25.4	27.0	27.2	27.7
Head depth	17.9	16.9	17.3	16.6	16.9	17.7	17.3	18.8	16.8	18.5	19.5	17.6
Head width	16.4	18.1	16.3	15.4	14.7	14.8	17.0	16.9	12.4	16.1	15.8	17.7
Body depth	19.2	18.1	17.7	17.5	18.4	19.6	18.1	20.6	17.0	21.0	20.5	16.6
Body width	15.4	12.3	12.0	12.0	11.5	12.5	10.4	12.7	10.0	13.6	13.9	12.8
Snout length	5.2	6.3	6.3	7.3	5.8	5.4	6.3	7.4	5.4	6.2	5.9	6.5
Maxillary length	11.1	11.9	12.1	12.2	12.6	12.7	13.8	13.4	12.4	11.5	12.5	13.3
Eye diameter	8.1	8.5	8.6	8.3	7.9	9.5	9.4	8.2	7.7	8.5	8.3	8.2
Interorbital width	1.2	1.1	0.9	1.0	1.0	0.7	0.8	1.0	0.9	1.1	1.2	1.1
Preanal length	52.4	52.0	55.6	52.2	52.6	54.2	54.6	50.5	52.3	51.6	53.9	52.9
Snout to first dorsal fin origin	29.9	31.7	34.3	31.4	32.8	31.1	34.0	32.1	32.5	32.1	31.6	32.3
Snout to first dorsal fin end	52.0	52.4	53.8	52.5	51.3	51.7	53.1	53.6	52.2	52.5	53.0	53.6
Snout to second dorsal fin origin	52.5	53.0	55.9	52.7	55.5	53.5	55.7	54.5	54.0	54.7	53.0	54.5
Snout to second dorsal fin end	81.1	80.6	80.5	82.0	82.6	82.2	81.2	80.9	79.0	81.4	81.1	80.6
Snout to anal fin origin	57.2	56.7	58.6	56.6	58.1	60.2	59.6	57.8	57.9	56.7	57.6	59.6
Snout to anal fin end	82.3	80.5	81.3	80.4	80.4	81.6	81.5	80.1	81.5	80.9	80.8	76.8
Caudal peduncle length	19.9	21.4	20.0	21.3	20.7	20.2	19.3	20.5	20.5	19.8	20.9	26.8
Caudal peduncle depth	11.4	10.3	9.6	10.5	10.2	10.5	10.1	10.8	11.0	11.7	12.1	11.8
First dorsal fin base	22.2	20.9	20.1	20.7	18.5	20.6	19.3	22.0	20.5	21.4	21.7	22.2
Second dorsal fin base	28.7	26.9	24.9	28.1	27.9	28.0	25.1	27.0	26.2	27.3	27.5	27.1
Anal fin base	26.4	23.2	22.6	23.9	23.2	22.8	22.6	23.1	25.3	23.9	24.3	18.8
Pectoral fin base	8.6	8.0	8.3	8.6	8.6	8.5	8.8	8.3	8.4	9.2	8.3	9.4
Longest first dorsal fin spine (2nd)	22.0	22.4	19.8	21.5	23.9	25.1	19.2	21.0	24.9	19.9	21.1	—
Longest second dorsal fin ray	18.6	26.2	20.7	21.9	22.8	24.7	21.0	24.1	24.6	21.4	24.2	26.9
Longest pectoral fin ray	(9th)	(9th)	(10th)	(10th)	(10th)	(10th)	(10th)	(10th)	(10th)	(10th)	(10th)	(10th)
	27.9	29.1	32.7	30.9	31.6	30.1	31.2	28.0	30.2	27.4	28.9	33.2
	(12th)	(12th)	(13th)	(12th)	(12th)	(12th)	(11th)	(13th)	(12th)	(12th)	(12th)	(13th)
Longest anal fin ray (10th)	19.4	21.8	19.1	20.9	19.8	20.6	20.1	21.4	—	17.2	17.9	(17.5)*
Longest pelvic fin ray (5th)	21.0	22.1	21.8	20.5	20.2	19.5	21.4	20.3	23.3	16.6	18.8	23.1
Caudal fin length	31.2	37.8	35.5	32.4	36.3	32.8	33.9	35.4	38.3	28.6	32.2	40.6

\* 7th ray longest in ZUMT 30521, in which anal fin includes only eight rays (see text).

Shijiki Bay, Nagasaki Pref., 10 June 1975, coll. T. Nakabo; FAKU 55712, female, 68.7 mm SL, off Hamada-shi, Shimane Pref., 60 m, 11 Mar. 1975, coll. T. Nakabo; HUMZ 36304, male, 61.5 mm SL, off Kochi Pref., date unknown; IOP 3453, female, 54.4 mm SL, off Tateyama-shi, Chiba Pref., 30 m, 3 Oct. 1993, coll. K. Ozaki; IOP 3454, male, 54.5 mm SL, same data as IOP 3453; ZUMT 30521, male, 46.3 mm SL, Shizuura, Shizuoka Pref., date unknown.

**Comparative material examined.** *Vanderhorstia auro-punctatus* (Tomiyama, 1955), NSMT-P 46573, holotype, female, 38.7 mm SL, near Kamegi, a reef off Nagai, Kanagawa Pref., 58 m depth, 1 Dec. 1951.

**Diagnosis.** Longitudinal yellow line on middle of cheek; yellow or brownish line from above middle of maxilla to lower part of cheek; oblique yellow line on occiput behind eye; orange line between maxilla and lachrymal; three transverse yellow lines on flank; predorsal with 7–18 scales; cheek and opercle naked; occiput and pectoral base scaled.

**Description of neotype (male).** D VI-I, 11; A I, 12; P1 19; P2 I, 5; LR 31; TR 11; Pred.S 14; P-V 3/II II I I 0/9; V 10+16=26.

Body elongated, compressed. Head moderately compressed. Snout short. Eye large. Interorbital space narrow. Anterior and posterior nostrils with short tubes. Mouth large, oblique; posterior end of maxilla reaching a vertical through middle of eye. Teeth on upper jaw conical, caniniform; 3 rows anteriorly, 2 rows posteriorly; teeth of outermost row enlarged, anteriormost row with 2 pairs of larger teeth. Teeth on lower jaw conical, caniniform; 4–5 rows anteriorly, one row posteriorly; teeth of outermost row enlarged, second outermost row with a pair of larger teeth. Palatine and vomer toothless. Gill opening wide, extending below midway between posterior ends of preopercle and eye; gill membranes closely attached to isthmus. Tongue free, tip rounded. No fleshy papillae on inner margin of shoulder girdle.

Cephalic sensory system well-developed (Fig. 2). Anterior oculoscapular canal with pores B', C(S), D(S), E, F, G, H'; posterior oculoscapular canal with pores K', L'; preopercular canal with pores M', N, O'. Larger sensory papillae, sparsely arranged; three papillae along outer side of nostrils; two papillae in front of pore B' and side of anterior nostrils; two papillae at side of pore B'; a papilla on top of snout; two papillae below anterior part of eye along maxilla; a transverse row above middle of maxilla comprising two papillae; a row of longitudinal papillae below pupil; a row of papillae from pore F to

below posterior part of pupil along infraorbital line; a papilla on center of cheek; a papilla behind pore E on frontal region; three papillae between pores H' and K'; a papilla behind pore L'; a papilla on symphysis; a row of papillae from near symphysis to pore O' along lower part of preoperculomandibular line, but interrupted behind mandibular. Smaller sensory papillae, densely arranged; a row of longitudinal papillae from below posterior end of pupil to above pore N, but interrupted from below pores F to G; a row of longitudinal papillae from above middle of maxilla to center of cheek; a row of papillae above preoperculomandibular line, divided into mandibular part, lower part of preopercular part and part above pore M'; a row of transverse papillae, followed by two rows of longitudinal papillae on opercle; a row of longitudinal papillae on oculoscapular line, separated from before pore K' to behind pore L'; a papilla and two rows of longitudinal papillae on occipital region; a row of longitudinal papillae, divided into two parts, on nape; two rows of transverse and one of longitudinal papillae on scapular area.

First dorsal fin moderately high, not continuous with second dorsal fin; spine tips not filamentous, second spine longest. Second dorsal fin lower than first dorsal fin; second dorsal fin rays increasing in length posteriorly; all rays branched distally; last ray divided at base. Anal fin origin between level of first and second rays of second dorsal fin; anal fin rays increasing in length posteriorly, all rays branched distally; last ray divided at base. Pectoral fin weakly pointed, longer than head length, reaching between first and second ray of second dorsal fin; no free rays; rays branched distally except for uppermost and lowermost. Pelvic fins fully united; pelvic frenum and connecting membrane well developed; fin tips extending to anus when appressed. Caudal fin round, longer than head. Scales cycloid anteroventral to first dorsal fin, on occiput, pectoral base and breast; ctenoid posteroventral to first dorsal fin; scales larger posteriorly. Genital papilla slender, pointed.

*Color in life.*—Upper part of body pale brown with many yellow spots, lower part pale brownish-white. Lateral surface of body with 4 obscure brown blotches below first dorsal fin, anterior and posterior parts of second dorsal fin, and posterior part of caudal peduncle. Upper part of head pale brown, lower part white; a longitudinal yellow line on middle part of cheek, a yellow line (posterior half brownish-yellow) from above middle of maxilla to

lower part of cheek, an oblique yellow line on occiput behind eye, some yellow spots on occiput, 4 yellow spots on opercle. An orange line between maxilla and lachrymal. Three transverse yellow lines on lateral aspect of belly. Two pale yellow spots on pectoral fin base. First and second dorsal fins whitish-blue with many yellow spots; tips of 1st–4th spines black. Pectoral fin transparent. Pelvic fin white with yellow lines between rays. Anal fin bluish-white with a longitudinal yellow line on lower half. Caudal fin bluish-white with yellow lines and spots; distal margin light blue, upper half with many yellow spots, lower half with several vermicular yellow marks.

*Color in alcohol.*—Yellow color lost from spots and lines on head and body. Orange line between maxilla and lachrymal lost. Yellow spots on first and second dorsal fins lost, whitish-blue transformed to pale brown. Yellow lines between rays on pelvic fin transformed to brown. Anal fin pale brown, lower half with a longitudinal transparent line. Caudal fin pale brown with many transparent spots and vermicular lines; distal margin brown.

**Description of nontype material.** D VI–I, 11; A I, 11 (8 in ZUMT 30521); P1 19–21; P2 I, 5; LR 30–35, 39 (39 in IOP 3453); TR 10–12 (12 in IOP 3453); Pred. S 7–18; P–V 3/II II I I 0/9; V 10+16=26.

Posterior tip of pelvic fin not extending to anus when appressed in BSKU 46652, IOP3453 and 3454. Genital papilla slender and pointed in males, thick and blunt in females. Teeth in outermost row of upper jaw with 1–2 pairs of larger teeth at front; innermost row, anteriorly with 0–3 pairs of larger teeth. Teeth on lower jaw in 3–5 rows anteriorly, the second outermost row with 1–3 pairs of larger teeth. A row of small longitudinal papillae from above middle of maxilla to center of cheek interrupted in FAKU 55711 and ZUMT 30521, and on left side of head, branched in middle in IOP 3454. A row of 3 (usually) large, transverse papillae above middle of maxilla (2 only on right side in BLIH 1993024 and BSKU 43848). A row of small longitudinal papillae from below posterior end of eye to above pore N, not branched anteriorly. A continuous row of small longitudinal papillae on nape. Other characters agree closely with neotype.

*Color in life.*—A longitudinal yellow line on center of cheek, interrupted on one or both sides of head in BLIH 1992262, BSKU 43848, BSKU 46652, FAKU 55711, IOP 3453 and ZUMT 30521. Tips of 1st–4th

spines of first dorsal fin black in BLIH 1993024, of 4th–5th spines black in BLIH 1992262.

**Habitat and distribution.** *Vanderhorstia macropteryx* inhabits sandy-muddy bottoms (Ikeda et al., 1993) in 20–110 m. Associations with a snapping shrimp were observed while SCUBA diving off Atami Port, Shizuoka Pref. (at 38 m), and off Tateyama City, Chiba Pref. (at 23 m) (by M. Hayashi, pers. comm.). The species is known only from Japan, occurring widely along the southern coast.

**Remarks.** All of the *V. macropteryx* specimens examined agreed well with the original description and figure of the species given by Franz (1910); viz. head length (25.4–29.3% SL vs. 28.6% SL in original description), body depth (17.0–21.0 vs. 16.7), caudal peduncle depth (33.6–44.6 vs. 40.0), eye diameter (29.5–34.8 vs. 28.6), snout length (19.8–27.7 vs. 20.0), upper jaw length (42.6–50.1 vs. 42.9), second dorsal fin ray count (12, number includes both spine and soft rays vs. 12), anal fin ray count (12–13, number includes both spine and soft ray vs. 12), LR (30–39 vs. 30), TR (10–12 vs. 10), obscure brown blotches on lateral surface of body, a longitudinal line on middle of cheek, a line from above middle of maxilla to lower part of cheek, many spots on dorsal and caudal fins, and a longitudinal line on anal fin. Because the two syntypes were destroyed and the original description restricted NSMT-P 46608 is designated as a neotype for *V. macropteryx*, according to Art. 75 of the International Code of Zoological Nomenclature (ICZN, 1985). Atami, Shizuoka Prefecture, the collection site of the neotype is very close to Zushi, Kanagawa Prefecture, the type locality.

Specimen ZUMT 30521, reported by Tomiyama (1936), had eight anal fin soft rays, fewer than the other specimens, owing to the last soft ray not being divided at the base as in the other specimens, and the haemal spine of the 18th vertebrae being bent anteriorly.

Among the known species of *Vanderhorstia*, *V. macropteryx* is most similar to *V. auropunctatus* (Tomiyama, 1955) in having scales on the predorsal area and side of the head, larger scales and fewer lateral scale rows (30–39), fewer second dorsal and anal fin ray counts (I, 11 and I, 11–12), four brown marks on the side of the body, many yellow spots on the upper half of the body, the first and second dorsal fins and upper half of the caudal fin.

In addition to the above similarities, the pattern of

cephalic sensory pores and papillae of *V. macropteryx* also resembles that of *V. auropunctatus*. Akihito, Sakamoto, Iwata and Ikeda (1993) included lateral views of *V. macropteryx* (ZUMT 30521) and *V. auropunctatus* (NSMT-P 46573, holotype), showing an interrupted lower longitudinal row of smaller sensory papillae on the cheek of the former, but a continuous row in the latter. This difference between the two species was not regarded as a specific character, because specimens of *V. macropteryx* examined here showed some individual variation in the cephalic sensory papillae patterns.

However, *V. macropteryx* differs from *V. auropunctatus* in having many predorsal scales (8–16 in the former vs. 1 in the latter), yellow marks on the head (absent), an orange line on the membrane above the maxilla (absent), three yellow transverse lines on the belly (absent) and no broad hyaline band on the caudal fin (a broad, longitudinal hyaline band).

The above two species are both temporarily included in *Vanderhorstia*. *V. macropteryx* was originally included in *Ctenogobius* by Franz (1910), and later transferred to *Rhinogobius* by Jordan et al. (1913) and to *Gobius* by Tomiyama (1936). Ikeda et al. (1993) included the species in *Vanderhorstia*. *V. auropunctatus* was transferred from *Mars* to *Vanderhorstia* by Akihito (1984b). However, the above changes of generic position of the two species were done without any discussion. *Vanderhorstia* is characterized as follows. The compressed head, the gill-opening extending from the rear of the preopercular margin to below the eye, the longitudinal cheek papillae pattern, the anterior and posterior oculoscapular canal pores B', C(S), D(S), E, F, G, H' and K', L', the preopercular canal pores M', N, O', the cycloid or ctenoid scales, the ventral fin forming a disc, the dorsal fin rays VI-I, 12–16, the anal fin rays I, 12–17, the pectoral fin rays 17–19, the lateral scale rows 47–67, vertebrae 26 (Hoese, 1986). However, *V. macropteryx* and *V. auropunctatus* differ from other *Vanderhorstia* species in having scales on the predorsal area and side of the head, larger scales overall and fewer lateral scale rows, and fewer second dorsal and anal fin ray counts, more pectoral fin ray counts. The problems of generic placement will be addressed in the future.

### Acknowledgments

We are grateful to Dr. Akihisa Iwata, Imperial Household Agency, for reviewing the manuscript, in addition to kind hospitality and valuable advice. We wish to thank Dr. Hiroshi Senou, Kanagawa Prefectural Museum, the late Dr. Yoshiaki Tominaga (ZUMT), Dr. Osamu Okamura (BSKU) and Dr. Kunio Amaoka (HUMZ) for the loan of specimens, Dr. Ryoichi Arai, University of Tokyo, for valuable advice, Dr. Fritz Terofal, Zoologische Staatssammlung, Munich and Mr. Masayoshi Hayashi, Yokosuka City Museum, for useful information. Thanks are also offered to Mr. Nobuyuki Iwasaki, Ota-ku, Tokyo and Mr. Katsuichi Sakamoto, Imperial Household Agency, for their kind help.

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## ヒレナガハゼの再記載と新模式標本の指定

池田祐二・中坊徹次・平松 亘

ヒレナガハゼ *Vanderhorstia macropteryx* (ハゼ科) は Franz (1910) により神奈川県逗子市沖から得られた2個体の標本を基に記載されたが、これら模式標本は第二次世界大戦の空襲により消失してしまった。その後、Tomiyama (1936) は静岡県静浦の海岸に打ち上げられた1個体を図のみで形態の記載をせずに報告したが、その標本は傷んでいるうえに臀鰭に奇形があることがわかった。今回、南日本各地沿岸から本種の標本11個体を得た。原記載が簡単に行われていることもあり、本種の形態学的な記載は十分とはいえ、これらの標本を基に本種の再記載を行った。そして学名の安定のために、基産地に近い熱海産の標本 NSMT-P 46608 を新模式標本に指定した。

本種の特徴として、頬中央部の1黄色縦線、主上顎骨直上の膜の1橙色線、目の後方の1黄色斜線、第1および第2背鰭と尾鰭上方および体側上方の多数の黄色点、腹部体側の3黄色横線、体側の4つの褐色斑、胸鰭は第2背鰭始部を越えることなどがあげられる。また、本種はテッポウエビ類と共生していることが確認された。

(池田: 〒100 千代田区千代田1-1 宮内庁侍従職; 中坊: 〒606-01 京都市左京区北白川追分町 京都大学農学部水産学教室; 平松: 〒274 船橋市田喜野井4-22-20)