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A New Species of Freshwater Rainbowfish (Melanotaeniidae) from Misool Island, Indonesia

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Abstract

A new species of rainbowfish (Melanotaeniidae) belonging to the genus *Melanotaenia* is described from 23 specimens collected at Misool Island off the western extremity of Irian Jaya, Indonesia. *Melanotaenia misoolensis* sp. nov. is closely related to *M. catherinae* from Waigeo Island, but differs with regard to colour pattern and by having a greater number of soft anal rays.

Introduction

The freshwater rainbowfishes of the family Melanotaeniidae are small (usually under 12 cm) inhabitants of streams, lakes, and swamps in the Australian-New Guinea region. The group contains approximately 50 species which are assigned to eight genera (see Allen 1980). *Melanotaenia* is by far the largest genus with 25 known species, of which 21 are found in New Guinea (Allen and Cross 1982). This large island still remains relatively unexplored, and therefore can be expected to yield additional new species, particularly the poorly known western half (Irian Jaya).

The present paper describes a new *Melanotaenia* which was located amongst unstudied New Guinea material at the Zoological Museum of the University of Amsterdam in the Netherlands. *Melanotaenia misoolensis* sp. nov. is described on the basis of 23 specimens collected at Misool Island in 1948. Misool is a relatively large (approximately 90 x 38 km) island lying just to the south of the western extremity of Irian Jaya and separated from the mainland by a distance of 32 kilometres. The island has a maximum elevation of 990 m. Rainbowfishes of the genus *Melanotaenia* have been reported from several other islands off the coast of Irian Jaya. *Melanotaenia catherinae* (Beaufort) from Waigeo and *M. japenensis* Allen and Cross from Japen are endemic to these islands which are situated off the north coast. The Aru Islands off the south coast are inhabited by *M. goldiei* (Macleay) and *M. splendida rubrostriata* (Ramsay and Ogilby), both of which are widely distributed on the southern New Guinea mainland. All of these insular areas were formerly connected to the New Guinea land mass and are presently separated by shallow (less than 50 fathoms) seas.

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Methods of counting and measuring follow those explained in Allen and Cross (1980). Counts and measurements are summarized in Tables 1 and 2. Data in parentheses indicate the range for paratypes when differing from the holotype. Proportional measurements are presented as percentage of the standard length. These data are based on the holotype and 12 paratypes, 42.0-56.8 mm SL. Type specimens are deposited at the National Museum of Natural History, Washington, D.C. (USNM), the Western Australian Museum, Perth (WAM) and the Zoologisch Museum, Amsterdam (ZMA).

Table 1 Proportional measurements expressed in thousandths of the standard length for selected type specimens of *Melanotaenia misoolensis* sp. nov.

Character	Holotype ZMA 116.456	Paratypes ZMA 116.457			
Standard length (mm)	56.8	58.5	52.9	51.0	50.0
Depth	335	345	342	350	336
Width	136	144	134	137	144
Head length	278	277	297	290	288
Snout to first dorsal fin origin	481	479	541	527	484
Snout to anal fin origin	502	509	493	480	504
Snout to pelvic fin origin	387	383	346	363	384
Length of second dorsal fin base	246	260	227	224	246
Length of anal fin base	396	421	384	363	404
Snout length	88	89	87	84	86
Orbit diameter	92	93	96	98	100
Bony interorbital width	106	104	112	102	104
Depth of caudal peduncle	109	115	121	122	112
Length of caudal peduncle	141	145	174	176	144
Length of pectoral fin	202	203	208	224	206
Length of pelvic fin	167	162	197	188	170
Longest ray of first dorsal fin	165	156	123	147	150
Longest ray of second dorsal fin	143	137	127	143	128
Longest anal ray	132	120	155	139	140
Length of caudal fin	218	239	246	231	270

Table 2 Fin ray counts for type specimens of *Melanotaenia misoolensis*.

First dorsal fin spines			Second dorsal fin soft rays		
IV	V	VI	12	13	14
2	21	2	10	13	2

Anal soft fin rays						Pectoral fin rays			
20	21	22	23	24	25	13	14	15	16
1	1	5	7	6	5	8	13	3	1

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Systematics

Melanotaenia misoolensis sp. nov.

Figure 1

Holotype

ZMA 116.456 , male 58.5 mm SL, tributary of Wai Tama at Fakal, Misool Island, Indonesia (approximately 2°00'S, 130°00'E), M.A. Lieftinck, 2 October 1948.

Paratypes

USNM 227492, 3 specimens, 30.6-39.5 mm SL, collected with holotype; WAM P27279-001, 2 specimens, 52.9-58.5 mm SL, collected with holotype; AMZ 116.457, 17 specimens, 21.9-52.7 mm SL, collected with holotype.

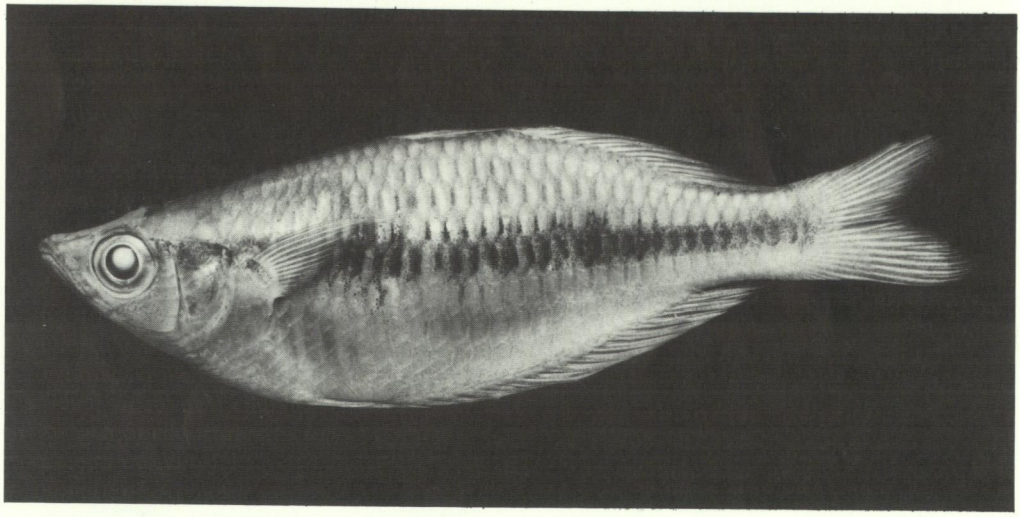

Figure 1 *Melanotaenia misoolensis*, male, paratype, 58.5 mm SL.

Diagnosis

A species of *Melanotaenia* with the following combination of characters: dorsal rays IV to VI-I,12 to 14; anal rays I,20 to 25; pectoral rays 13 to 16; horizontal scale rows 10; vertical scale rows 33 or 36; preopercle-suborbital scales 11 to 15; predorsal scales 13 to 17; colour in preservative generally pale brown on back and yellowish-tan below; a dark stripe running along middle of sides from rear edge of eye to caudal fin base, maximum width of stripe about 1½ scales.

Description

Dorsal rays V-I,12 (IV to VI-I,12 to 14); anal rays I,23 (I,20 to 25); pectoral rays 13 (13 to 16), horizontal scale rows 10; vertical scale rows 34 (33 to 36); predorsal scales 16 (13 to 17); preopercle-suborbital scales 13 (11 to 15); gill rakers on first arch 2 + 16 (2 or 3 + 14 to 16).

Greatest body depth 34.5 (32.6 to 35.0); maximum body width 14.4 (13.6 to 14.9); head length 27.7 (27.0 to 29.8); snout length 8.9 (8.4 to 9.0); eye diameter 9.3 (9.2 to 11.0); interorbital width 10.4 (10.2 to 11.2); caudal peduncle depth 11.5 (10.9 to 12.2); caudal peduncle length 14.5 (14.1 to 17.6); pectoral fin length 20.3 (20.2 to 22.4); pelvic fin length 16.2 (16.7 to 19.7); caudal fin length 23.9 (21.0 to 27.0); predorsal distance 47.9 (48.1 to 54.1); preanal distance 50.9 (45.7 to 51.0); prepelvic distance 38.3 (34.6 to 38.7).

Body ovate, laterally compressed, the snout somewhat pointed. Predorsal profile straight, the interorbital and adjacent nape flattened. Ventral, prepelvic profile rounded, the breast strongly compressed at ventral midline.

Jaws oblique, approximately equal; premaxilla with an abrupt bend between the anterior horizontal portion and lateral part; rear edge of maxilla about level with front of eye; lips thin; both jaws with dense covering of teeth arranged in irregular rows; teeth conical with slightly curved tips; teeth on anterior and lateral portions of premaxilla invading lips and distinctly visible when mouth is closed; exposed teeth also visible at front of lower jaw; vomer with narrow band of villiform teeth in 1 or 2 rows; palatines with similar teeth arranged in a single row.

Scales relatively large, arranged in regular horizontal rows; scales with smooth to scalloped margins; predorsal scales extending to rear of interorbital; preopercle-suborbital scales in two rows.

First dorsal fin originates about level with or slightly behind anal fin origin; first spine 2-3 times thickness of other spines of first dorsal fin; third spine the longest, its tip reaching base of about third soft ray of second dorsal fin when depressed. Last 2 or 3 soft rays of second dorsal fin the longest in males, anterior rays the longest in females; depressed tip of second dorsal fin extending nearly to caudal fin base in adult males and about half to two-thirds length of caudal peduncle of females. Anal spine slightly shorter than first dorsal spine which is about half head length; longest rays of anal fin in posterior part of fin in males and anterior portion in females; dorsal and anal fins with rectangular outline, pointed posteriorly with elongated rays in males; pectoral fins pointed; pelvic fin tips when depressed extending to about base of second or third soft anal ray; caudal fin moderately forked.

Colour in alcohol: light brown on upper back, yellowish-tan on ventral half; a brown stripe, slightly more than one scale wide at its broadest point, extending along middle of side from rear edge of eye to base of caudal fin; fins primarily tan with some dusky brown pigmentation; a brownish spot frequently present at base of upper pectoral rays. Live coloration is unknown.

Comparisons

Melanotaenia misoolensis is most closely allied to *M. catherinae* (Beaufort 1910), which is endemic to Waigeo, a large island lying approximately 160 km north of Misool. Both species are similar in colour; however, the mid-lateral stripe of *M. catherinae* is significantly wider, having a maximum width of about

three scales compared with 1½ scales for *M. misoolensis*. Moreover, the mid-lateral stripe of *M. misoolensis* is nearly covered entirely by the pectoral fin, whereas it is broadly exposed (at least one scale row) above the pectoral fin of *M. catherinae*. In addition, the latter species lacks the dusky spot on the fin membrane behind the last dorsal spine and has a dusky soft dorsal fin which is often blackish in adult males. *Melanotaenia misoolensis*, in contrast, has a dusky spot behind the last dorsal spine and the soft dorsal fin is pale, possibly yellowish in life. The only meristic difference noted is related to counts for the soft anal rays. *Melanotaenia misoolensis* usually has 22 to 25 rays (one specimen with 20 rays) compared with 19 to 21 rays for *M. catherinae*. Comparative material included 35 specimens (ZMA 103.145, paralectotypes), 37-72 mm SL, of *M. catherinae*.

Remarks

The species is named *misoolensis* with reference to the type locality.

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