

## Synonymization of *Pararasbora*, *Yaoshanicus*, and *Nicholsicypris* with *Aphyocypris*, and Description of a New Species of *Aphyocypris* from Taiwan (Teleostei: Cyprinidae)

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**Te-Yu Liao, Sven O. Kullander, and Hung-Du Lin (2011)** Synonymization of *Pararasbora*, *Yaoshanicus*, and *Nicholsicypris* with *Aphyocypris*, and description of a new species of *Aphyocypris* from Taiwan (Teleostei: Cyprinidae). *Zoological Studies* 50(5): 657-664. The genus *Aphyocypris* is a group of small fish distributed in East Asia. *Aphyocypris amnis* sp. nov. is characterized by the lateral line turning upward at a vertical from the posterior end of the anal-fin base, 3 scales between the lateral line and posterior end of the anal-fin base, and the last 5-7 scales of the lateral line running along the midline of the caudal peduncle. A ventral keel is present between the pelvic-fin base and anus. *Aphyocypris amnis* sp. nov. is found only in the Shuili River, a tributary of the Choshui River in central Taiwan. *Pararasbora* Regan, 1908, *Yaoshanicus* Lin, 1931, and *Nicholsicypris* Chu, 1935 are synonyms of *Aphyocypris* Günther, 1868. <http://zoolstud.sinica.edu.tw/Journals/50.5/657.pdf>

**Key words:** Sun-Moon Lake, Lake Candidius, New species, Synonymization, Taiwan.

*Pararasbora moltrechti* Regan, endemic to central Taiwan and the only species in its genus, is a small cyprinid fish, usually placed in the subfamily Danioninae (Chen and Chang 2005). It was originally described from Lake Candidius, a mountain lake in central Taiwan presently known as *Riyuètán* in Chinese or Sun-Moon Lake in English. Later it has been reported to have a scattered distribution in some tributaries of the nearby Choshui, Tadu, and Tachia River drainages (Chen and Chang 2005). It is considered an endangered species due to habitat destruction (Liao et al. 2005). Comparison of specimens of *P. moltrechti* from these 3 rivers showed that specimens from the Choshui River represent an undescribed species. When compared to similar species, it also became evident that *Pararasbora* cannot be upheld as a separate genus. The purposes of this paper

are (1) to describe the new species of *Aphyocypris* from the Choshui River and (2) to examine interrelationships among *Aphyocypris* Günther, 1868, *Pararasbora* Regan, 1908, *Yaoshanicus* Lin, 1931 and *Nicholsicypris* Chu, 1935.

### MATERIALS AND METHODS

Counts of dorsal-fin rays, anal fin rays, predorsal vertebrae, abdominal vertebrae, and caudal vertebrae were conducted by x-radiography obtained with a Philips MGC-30 machine (Amsterdam, Netherlands) with Kodak X-omat V film (Rochester, NY, USA). Counts of predorsal vertebrae, abdominal vertebrae, and caudal vertebrae followed Liao et al. (2010), in which predorsal vertebrae were those before the insertion

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of the 1st dorsal pterygiophore, including the 4 vertebrae comprising the Weberian apparatus. Caudal vertebrae referred to those vertebrae bearing a haemal spine, including the compound centrum, and the remaining vertebrae refer to the abdominal vertebrae, including the Weberian apparatus.

Morphometric measurements of specimens were taken point-to-point to the nearest of 0.1 mm with digital calipers following Liao and Tan (2011). All perforated scales along the lateral line were counted as lateral line scales. Predorsal scales were counted along the midline from the 1st scale behind the head to the one in front of the dorsal-fin insertion. Transverse line scales were counted on an imaginary straight line along the origins of the dorsal and pelvic fins. Circumpeduncular scales are the number of longitudinal scale rows around the part where caudal depth was measured. All measurements and scale counts were conducted on the left side of the body whenever possible.

Terminologies of the color pattern and squamation followed Brittan (1972), and osteological terminology followed Fang (2003). The preparation of cleared and stained (C and S) specimens followed the procedure described by Taylor and Van Dyke (1985), but the length of time in the alcian blue solution was 2-6 h instead of 12-24 h they suggested. The examined material is housed in the Biodiversity Research Center, Academia Sinica, Taipei, Taiwan (ASIZ); Natural History Museum, London (BMNH); and The Swedish Museum of Natural History, Stockholm, Sweden (NRM).

### *Aphyocypris amnis* sp. nov.

(Figs. 1, 2)

**Holotype:** ASIZP 0072172, 1, 39.2 mm standard length (SL). Choshui River drainage: a small branch draining into the Shuili River, close to the Sun-Moon Lake, Yuchi, Nantou County, Taiwan. 23°51.04'N, 120°53.47'E, Feb. 2008. H.D. Lin.

**Paratypes:** All collected together with holotype: NRM 44953. 4, 41.8-47.3 mm SL. NRM 44954. 5, 39.9-43.6 mm SL. NRM 44955. 6, 29.1-42.2 mm SL. NRM 44956. 5, 33.3-40.1 mm SL.

**Diagnosis:** Distinguished from *Aphyocypris moltrechti* by a unique lateral line pattern, in which lateral line turning upward at vertical of posterior end of anal-fin base, running very close to midline of caudal peduncle after turning point, gradually ascending to midpoint of caudal peduncle end vs.

upward turn absent, lateral line running gradually ascending to midpoint of caudal peduncle end in *A. moltrechti* (Fig. 3); 2 or 3 scales along vertical between lateral line and posterior end of anal-fin base (including scale row on anal-fin base) vs. 1 or 2 scales in *A. moltrechti*; last 5-7 scales of lateral line along midline of caudal peduncle vs. 3-5 in *A. moltrechti*; fewer lateral line scales (34-37) and perforated scales (33-36) vs. 35-38 and 34-38 in *A. moltrechti* (Table 1).

**Description:** Refer to figure 1 for overall



Fig. 1. *Aphyocypris amnis* sp. nov., holotype, ASIZP 0072172, 39.2 mm SL.



Fig. 2. *Aphyocypris amnis* sp. nov., live specimen, about 50.0 mm SL. Taiwan: type locality.

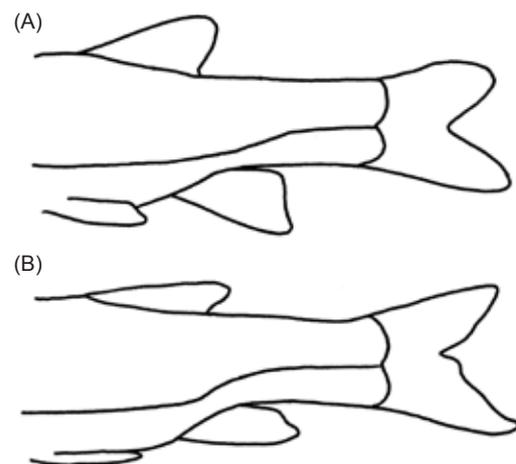


Fig. 3. Lateral line pattern of (A) *Aphyocypris moltrechti* and (B) *A. amnis* sp. nov.

body shape and to table 2 for morphometric data. Elongate, laterally compressed; predorsal contour rather straight and gradually sloping; prepelvic contour with angle at lower jaw articulation, posteriorly curved, much steeper than predorsal contour. Ventral keel present between posterior end of pelvic-fin base and vent. Head moderately pointed in lateral view. Mouth oblique, maxilla reaching vertical through anterior margin of orbital; lower jaw without symphyseal knob, articulating below 1/3 of orbital, lower jaw projecting slightly behind or even with upper jaw. Tubercles present on lower jaw. No barbels. Orbit situated in anterior 1/2 of head and slightly above level of its mid-axis. Interorbital space broad and rather flat, greater than orbital diameter.

Dorsal fin with 7 branched rays, pointed, posterior margin straight, at approximately midpoint between pelvic- and anal-fin insertion and usually 4 scales behind pelvic-fin insertion. Pectoral fin blunt, approximately at a vertical of posterior margin of opercle, posterior tip of pectoral fin almost reaching pelvic-fin insertion. Pelvic fin pointed, posterior margin straight. Axillary pelvic scale present, approximately equivalent to 2 scales in length. Anal fin with 7 branched rays, pointed, posterior margin straight. Caudal fin bilobate, lobes equal and bluntly pointed.

Gentle depression present in anterior 1/2

of lateral line, gradually ascending from vertical of anal fin insertion, turning upwards abruptly at vertical from posterior end of anal-fin base, and then gradually ascending to midpoint of caudal peduncle; scales in lateral line row 34-37, lateral line complete, perforating 33-36 scales. Predorsal scales 14 (1), 15 (5), 16 (10), 17 (3), not in a definite mid-dorsal line. Fourteen circumpeduncular scales, including 7 above and 3 below lateral line. Transverse scales  $\frac{1}{2}$  5/1/4  $\frac{1}{2}$  (18),  $\frac{1}{2}$  5/1/5  $\frac{1}{2}$  (3),  $\frac{1}{2}$  6/1/4  $\frac{1}{2}$  (2),  $\frac{1}{2}$  6/1/5  $\frac{1}{2}$  (1); 3 scales between lateral line and insertion of pelvic fin. Two or 3 [2 (7), 3 (17)] scales between lateral line and posterior end of anal-fin base.

Predorsal vertebrae 12 (2), abdominal vertebrae 18 (1), 19 (1), caudal vertebrae 16 (2), pharyngeal teeth in 2 rows 3,4-5,3 (1).

*Live Color:* Overall coloration greenish or grayish, darker above, whitish below. Top of head and dorsum brownish, dorsal stripe present from occiput to caudal-fin base. Pale blotch above orbit. Iris greenish, darker above, with golden inner outline along pupil. Gill cover yellowish with densely scattered pigmentation on upper half. Reticulated pattern present along side, stronger from upper gill opening to area between insertions of pelvic and anal fins. Melanophores irregularly scattered, denser along 3rd to 6th horizontal scale rows and on cheek, absent from belly. Scales with

**Table 1.** Counts of scales in *Aphyocypris amnis* sp. nov. and *A. moltrechti*

	<i>A. amnis</i>	<i>A. moltrechti</i>		<i>A. amnis</i>	<i>A. moltrechti</i>
perforated scales	number of individuals		lateral line scales	number of individuals	
33	3		33		
34	4	3	34	2	
35	12	10	35	4	1
36	5	12	36	14	6
37		8	37	4	18
38		2	38		10
	<i>A. amnis</i>	<i>A. moltrechti</i>		<i>A. amnis</i>	<i>A. moltrechti</i>
scales along vertical between lateral line and the posterior end of anal-fin base*	number of individuals		scales of lateral line along midline of caudal peduncle	number of individuals	
1		3	3		16
2	7	33	4		12
3	17		5	4	5
			6	14	
			7	6	

\*including the scale row on the anal-fin base.

dark posterior margin. Pectoral and pelvic fins yellowish; dorsal, anal and caudal fins reddish. In aquarium, all fins faint. No sexual dichromatism observed.

**Color in preservative:** A faint, dark lateral stripe along middle of side, from below origin of dorsal fin to caudal-fin base, darker posteriorly. Dark brownish above lateral stripe, yellowish below. Top of head dark brownish. Cheek yellowish. Gill cover yellowish with scattered brownish pigment. Iris whitish with a black outline. Dorsal stripe prominent from occiput to caudal-fin base, 1/2 dorsal scale row in width. Reticulated pattern present above lateral line, more intense behind gill opening, usually in 3 rows. A series of dots running along lateral line scales, fading out between pelvic and anal insertions. Melanophores densely scattered along distal margin of scales. Dark axial streak running from 2 scales in front of caudal-fin base to upper end of gill opening, fading out anteriorly. All fins hyaline, with some melanophores scattered on fin rays.

**Distribution and habitat:** *Aphyocypris amnis* sp. nov. is currently known only from the type locality, a small tributary of the Shuili River (Fig. 4).

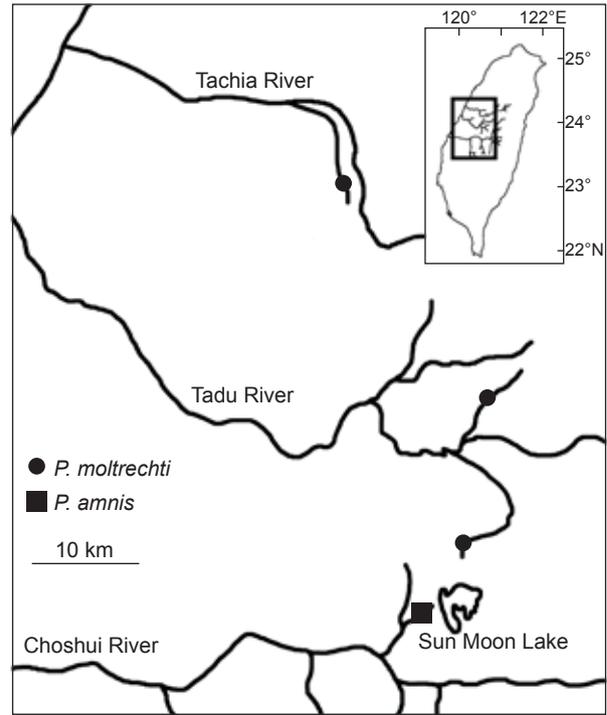


Fig. 4. Sampling localities of *Aphyocypris amnis* sp. nov. and *A. moltrechti* in Taiwan.

**Table 2.** Morphometry of *Aphyocypris amnis* sp. nov. Measurements of standard length (SL) and total length (TL) are in mm, and the others are in percent of SL unless noted. Two syntypes of *A. moltrechti* (BMNH 1909.4.28.24-25) are included in the measurements

	<i>Aphyocypris amnis</i>				<i>Aphyocypris moltrechti</i>		
	holotype	Min-Max	Mean	SD	Min-Max	Mean	SD
SL (mm)	39.2	29.1-47.3	40.9 (13)		32.3-59.0	46.4 (22)	
TL (mm)	52.4	38.5-60.9	53.9 (13)		42.8-75.6	60.2 (20)	
Body depth	25.8	24.7-26.4	25.6 (13)	0.6	23.1-27.6	25.2 (22)	1.2
Head length (HL)	26.8	26.2-28.7	27.3 (13)	0.7	24.6-26.8	25.8 (22)	0.6
Head depth (HD)	16.3	15.4-18.2	16.5 (13)	0.8	14.6-16.6	15.6 (22)	0.6
HD/HL	61.0	57.6-65.4	60.5 (13)	2.4	56.9-63.4	60.7 (22)	1.9
Orbital diameter (OD)	7.9	7.0-8.6	7.7 (13)	0.4	6.6-8.7	7.3 (22)	0.5
Snout length (SNL)	7.4	6.8-8.3	7.7 (13)	0.4	7.2-8.4	7.8 (22)	0.4
Interorbital width (IW)	11.5	10.8-11.7	11.2 (13)	0.3	9.9-12.7	11.5 (22)	0.6
SNL/OD	93.5	86.7-115.2	100.7 (13)	8.7	89.3-121.6	106.7 (22)	7.8
OD/IW	68.9	63.5-73.5	68.7 (13)	2.9	56.9-73.0	63.7 (22)	4.0
Caudal peduncle length (CL)	20.4	18.2-21.6	20.3 (13)	0.9	19.4-23.3	21.1 (22)	1.1
Caudal peduncle depth (CD)	13.8	12.7-13.8	13.2 (13)	0.3	12.4-14.3	13.4 (22)	0.5
CD/CL	67.5	60.2-71.7	65.4 (13)	3.7	55.4-70.6	63.5 (22)	3.6
Predorsal length	75.0	70.9-79.1	74.2 (13)	2.3	69.8-74.9	72.7 (22)	1.3
Preal length	58.4	55.0-59.2	57.7 (13)	1.3	55.6-60.8	58.5 (22)	1.5
Prepectoral length	29.8	28.0-31.7	30.1 (13)	1.1	25.2-29.0	27.4 (22)	0.9
Prepelvic length	51.8	50.6-56.0	53.2 (13)	1.4	47.3-53.3	50.9 (22)	1.5
Dorsal-hypural length	75.0	42.4-47.7	44.9 (13)	1.6	43.1-48.5	45.6 (22)	1.5
Dorsal-fin length	23.5	21.6-24.3	23.0 (13)	0.8	20.8-24.7	22.3 (20)	1.2
Anal-fin length	19.9	18.2-20.4	19.4 (13)	0.7	18.5-21.8	19.7 (19)	0.9
Pectoral-fin length	22.4	20.3-23.2	21.8 (13)	0.9	19.1-23.0	20.8 (20)	1.1
Pelvic-fin length	17.9	15.8-18.5	17.3 (13)	0.9	16.4-19.0	17.6 (20)	0.7

It was found as the only species of fish in a stream section about 50 m long, mostly composed of pools with a very low flow rate. At the downstream end of this reach is a 13-m-high sabo dam, followed by a waterfall about 15 m high. In the 30-m-long reach between the sabo dam and the waterfall, *A. amnis* sp. nov. is syntopic with *Candidia barbata* Regan, but much more numerous than the latter. *Aphyocypris amnis* sp. nov. is absent from the reach after the waterfall, where only *C. barbata* and *Acrossocheilus paradoxus* Günther are found. The pool in figure 5 is the type locality. At the time of collecting, it was about 5 m long and 3 m wide, no deeper than 0.5 m with moderately turbid water, and surrounded by forest. The bottom was muddy with patches of gravel. No aquatic plants were present, but grass on the bank extended into the water.

**Etymology:** From the Latin *amnis*, a stream, in allusion to its distribution in only 1 river drainage; treated as a noun in apposition.



**Fig. 5.** Nantou, Taiwan: type locality of *Aphyocypris amnis* sp. nov.

## DISCUSSION

Molecular characters have broadly been utilized to reconstruct phylogenies of freshwater fishes in Taiwan, including all species of *Aphyocypris* (Cheng et al. 2005, Wang et al. 2007a b, Liao et al. 2008, Lin et al. 2008, Chang et al. 2009, Chiang et al. 2010 2011). Chiang et al. (accepted) indicated that specimens of *Aphyocypris* collected from the Tachia and Tadu Rivers are monophyletic as a sister group of those of the Choshui River. In their tree, a reciprocal monophyly of specimens of the Choshui River and those of the Tachia and Tadu Rivers is achieved, which is concordant with the classification of *A. moltrechti* and *A. amnis* sp. nov.

*Aphyocypris*, *Pararasbora*, *Yaoshanicus*, and *Nicholsicypris* are considered to be closely related (Chu 1935, Tzeng 1986, Kottelat 2001), and their close interrelationships are supported by molecular data (Tang et al. 2010). The genus *Aphyocypris* comprises 2 species, *A. chinensis* and *A. kikuchii*, and the other genera are monotypic. *Aphyocypris* is relatively well studied, but *Pararasbora*, *Yaoshanicus*, and *Nicholsicypris* are poorly known. *Pararasbora* is distributed in west-central Taiwan. This genus was originally diagnosed only by comparison with the South Asian genus *Rasbora* Bleeker, and the only character mentioned was the absence in *Pararasbora* of a symphyseal knob on the lower jaw and a corresponding indentation in the upper jaw (Regan 1908). Later Oshima (1919) made a more-detailed description and concluded that *Pararasbora* is characterized by (1) a decurved lateral line, (2) dorsal and anal fins with 7 branched rays, (3) the absence of a symphyseal knob, (4) the absence of barbels, and (5) pharyngeal teeth in 2 rows. Bănărescu (1997) doubted the status of *Pararasbora*, without verifying the identity of *P. moltrechti*. *Yaoshanicus* was established by Lin (1931), characterized by (1) the absence of barbels, (2) a complete lateral line, (3) a ventral keel present between the posterior end of the pelvic-fin base and the anus, and (4) pharyngeal teeth in 3 rows. *Aphyocypris normalis* Nichols and Pope, based on specimens from Hainan Island, China, was transferred to the monotypic genus *Nicholsicypris* by Chu (1935), which was distinguished from *Aphyocypris* according to (1) the posterior end of the dorsal-fin base and the insertion of the anal fin separated by a considerable space vs. rather opposite without an interspace in *Aphyocypris*, (2) scales thick, firm, and adherent vs. not thin and deciduous

in *Aphyocypris*, (3) lateral line complete vs. incomplete in *Aphyocypris*, (4) pharyngeal teeth in 2 rows, main row with 4 or 5 teeth and outer row with 3 or 4 teeth (3-4, 4-5/4-5, 3-4) vs. 3, 4/4, 3 in *Aphyocypris*, and (5) ceratobranchial 5 broader, with an anterior edentulous process equal to or shorter than the dentigerous surface vs. narrower, with an anterior edentulous process much longer than dentigerous surface in *Aphyocypris*. Chen and Chu (1998) made a key to Chinese cyprinids, in which they placed *Aphyocypris*, *Nicholsicypris*, and *Yaoshanicus* in the subfamily Danioninae. Liao et al. (2011), using morphological characters, excluded *Aphyocypris* from the Danioninae and reassigned it to the Opsariichthyinae. According to the key and descriptions of Chen and Chu (1998), the number of rows of pharyngeal teeth is the only character discriminating *Nicholsicypris* from *Yaoshanicus*, and these 2 genera are distinguished from *Aphyocypris* by an incomplete lateral line. Kottelat (2001) considered that the change in row number of the pharyngeal teeth alone is insufficient to justify *Nicholsicypris* being different from *Yaoshanicus*. Therefore, he suggested that *Nicholsicypris* should be synonymized with *Yaoshanicus* if the number of pharyngeal tooth rows is the only diagnostic character. Du et al. (2003) examined *N. normalis* and *Y. arcus* from 9 localities. They observed variations in the number of pharyngeal tooth rows within species, which corroborates the conclusion of Kottelat (2001).

Tzeng (1986) indicated that *N. normalis* is conspecific with *P. moltrechti*. His opinion was never mentioned by subsequent authors. We agree that these 2 species are congeneric and consider *Nicholsicypris* to be a synonym of *Pararasbora*, but *N. normalis* is apparently not a synonym of *P. moltrechti* which is distinguished by the pectoral fin reaching the insertion of the pelvic fin (Nichols and Pope 1927: fig. 39; Fig. 6) (vs. not reaching, about 2 scales ahead). Taking



**Fig. 6.** *Aphyocypris normalis*, holotype, AMNH 8381, 64 mm SL. Photograph AMNH Ichthyology, Natural History Museum (London).

the actions of Tzeng (1986) and Kottelat (2001) in combination, *Nicholsicypris*, *Yaoshanicus*, and *Pararasbora* may refer to the same fish group, and *Nicholsicypris* and *Yaoshanicus* are synonyms of *Pararasbora*.

Since *Nicholsicypris* is a synonym of *Pararasbora*, the diagnosis of *Nicholsicypris* provided by Chu (1935) may be considered differences between *Pararasbora* and *Aphyocypris*. However, we failed to confirm the observations of the relative position between the dorsal and anal fins by Chu (1935). The interspace between the posterior end of the dorsal-fin base and the insertion of the anal fin is approximately the same in *Pararasbora* and *Aphyocypris*. In addition, we could not discern any difference in the adherence or thickness of the scales, or the general shape of ceratobranchial 5 between these 2 genera, and the number of pharyngeal-tooth rows is considered to be variable within a genus and not a good character for diagnosing genera (Chen 1982, Kottelat 2001, Liao et al. 2010). Therefore, we retain *Pararasbora* as a synonym of *Aphyocypris*. In conclusion, *Aphyocypris* can be distinguished from other cyprinid genera by the following combination of characters: dorsal-fin insertion at approximately the midpoint between the pelvic- and anal-fin insertions, absence of a symphyseal knob, absence of barbels, presence of a post-pelvic keel, and presence of tubercles on the lower jaw. Weitzman and Chan (1966) suggested that *Aphyocypris* and *Hemigrammocypripis* were the same, although no actual synonymization was made. Their opinion was not supported by molecular investigations (Fang et al. 2009, Tang et al. 2010), and these 2 genera can be distinguished by the absence of tubercles in *Hemigrammocypripis* (Weitzman and Chan 1966). Gosline (1978) proposed that *Tanichthys* is closely related to *Aphyocypris*. These 2 genera can be distinguished by the dorsal-fin insertion of *Aphyocypris* being located at the midpoint between the pelvic- and anal-fin insertions vs. slightly advanced or approximately dorsal to the anal-fin insertion in *Tanichthys*. Molecular data also show that *Tanichthys* is remote from *Aphyocypris* (Rüber et al. 2007, Fang et al. 2009, Tang et al. 2010).

The Sun-Moon Lake (also known as Lake Candidius in the English literature) is the largest lake in Taiwan and drains into a branch of the Choshui River. The northern shore of the lake is very close to tributaries of the Tadu River (Fig. 4). The type locality of *A. amnis* sp. nov. is the outlet of Sun-Moon Lake, and the type locality of

*A. moltrechti* is Sun-Moon Lake (Regan 1908). Two species of *Aphyocypris* are from the same drainage. Examination on the syntypes of *A. moltrechti*, however, showed the lateral line pattern being the same as that of specimens from the Tachia and Tadu Rivers, and there is no mixture of the 2 patterns at either locality. *Aphyocypris moltrechti* was probably only collected near, but not in the lake. The collector, Arnold Moltrecht, probably gave Lake Candidius as the locality for simplicity, especially since the Sun-Moon Lake was a well-known place in central Taiwan by that time. In addition to *A. moltrechti*, Regan (1908) described 4 additional new species collected by Moltrecht in the Sun-Moon Lake: *Gymnostomus labiatus* (= *Acrossocheilus paradoxus*), *Opsariichthys barbatus* (= *Candidia barbata*), *Liobagrus formosanus*, and *Salanx acuticeps*. Oshima (1923) reported that *A. moltrechti* was found in ditches of rice fields along the shore of Sun-Moon Lake. The other species; however, are never again reported from the Sun-Moon Lake. *Salanx acuticeps* is a brackish-water fish (Zhang 1984). *Acrossocheilus paradoxus* and *L. formosanus* live in running water. *Candidia barbata* and *A. moltrechti* inhabit still water of creeks. Like *A. moltrechti*, the other species were probably not collected from Sun-Moon Lake proper; instead that locality was used to denote a wide area of central Taiwan in the literature at the time.

### Comparative materials

*Aphyocypris arcus*: NRM 50148, 2, 61.8-62.7 mm SL. China: Xi Jiang drainage: Ming Jiang drainage, stream with clear running water, crossing Chongzuo-Banli road, ca 8 km E of Banli, in Liuqiao Township, by electrofishing and a castnet, Fusui, Nanning, Guangxi, China. 15 Mar. 2003. F. Fang et al.

*Aphyocypris chinensis*: NRM 15576, 3, 38.0-40.7 mm SL. Korea: P'yongyang, P'yongyang-si. No date. T. Mori, NRM 18831, 1, 34.4 mm SL. China: Shanxi: Yuanqu Xian, in stream. 5 May 1921. J.G. Andersson. NRM 50150, 1, 35.8 mm SL. China: Hunan: Chang Jiang drainage: Xiang Jiang drainage: stream along the road of Baibao-Zhushan Township, ca. 48 km NW of Quanzhou City, at Laocunli Cun in Daqingping Xiang, bought from a fisherman. 4 Mar. 2003. F. Fang and Y. Zhao.

*Aphyocypris kikuchii*: NRM 57368, 3, 37.6-52.4 mm SL; NRM 57369, 1 (C and S), 37.1 mm

SL. Taiwan: Hualien County: Hsiuguluan River: Lehe Creek, Yuli. 2007. C.R. Zhong.

*Aphyocypris moltrechti*: BMNH 1909.4.28.24-25, 2 (syntype), 43.7-53.9 mm SL. Taiwan: Lake Candidius [= Sun-Moon Lake]. No date. A. Moltrecht. NRM 44945, 5, 43.9-53.8 mm SL; 44047, 6, 32.3-53.9 mm SL. Taiwan: Taichung County: Tachia River drainage: Shihshuik Creek, Hsinshu. Feb. 2008. H.D. Lin. NRM 57360, 9, 40.4-59.0 mm SL; NRM 57361, 1 (C&S), 39.0 mm SL. Taiwan: Nantou County: Tadu River drainage: Shuiliudong Creek, Puli. 2007. M.T. Zhou and L.L. Chen.

*Aphyocypris normalis*: NRM 10385, 1, 28.3 mm SL. China: Guangxi: Kweping. July 1934. S.Y. Lin. NRM 45696, 1, 48.5 mm SL. China: Hong Kong: Sham Wat, Lantau. 11 Mar. 1999. B.P.L. Chen. NRM 45698, 1, 62.8 mm SL. China: Hong Kong: Lin Ma Hang, New Territories. 11 Feb. 1999. B.P.L. Chen. NRM 45701, 1, 72.0 mm SL. China: Hong Kong: Hoi Ha, New Territories. 4 Mar. 1999. B.P.L. Chen. NRM 45714, 1, 69.7 mm SL. China: Hong Kong: Lin Ma Hang, New Territories. 11 Feb. 1999. B.P.L. Chen. NRM 45715, 1, 46.5 mm SL. China: Hong Kong: Sham Wat, Lantau. 11 Mar. 1999. B.P.L. Chen.

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