

SCHISTURA DISPARIZONA, A NEW SPECIES OF LOACH FROM SALWEEN DRAINAGE IN YUNNAN (TELEOSTEI: BALITORIDAE)

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ABSTRACT. – *Schistura disparizona*, new species, is described from Nangun River (a tributary of the Salween) in Yunnan, China. It is distinguished by conspicuous dorsal and ventral adipose keels on caudal peduncle, 9½ branched dorsal-fin rays; 8-11 very narrow, closely-set, dark bars in anterior part of body and 5 wider bars posteriorly.

KEY WORDS. – Balitoridae, Yunnan, Salween, new species, taxonomy, fish.

INTRODUCTION

Loaches of the subfamily Nemacheilinae are small, benthic fish which inhabits slow to fast flowing waters of Eurasia. They are especially diverse and abundant in the Indochinese area where the complex geological history and hilly landscape favoured evolution and speciation. The subfamily includes about 410 valid named species, more are already known from museum shelves and a large number probably still await discovery. For a review of the nemacheilines of the Sundaic area, see Kottelat (1984); for the Indochinese area, see Kottelat (1990, 1998, 2000, 2001a, b) and Freyhof & Serov (2001); for the species occurring in Yunnan, see Zhu & Wang (1985) and Zhu (1989). We describe here a distinctive new species from the Salween basin in China.

MATERIAL AND METHODS

Methods for counts and measurements follow Kottelat (1990). The examined material is in Southwest Forestry College (SWFC), Kunming, China; the collection of the second author (CMK).

***Schistura disparizona*, new species**

(Figs. 1, 2)

Material examined. – Holotype - (78.0 mm SL)(SWFC 0203035), China: Yunnan Prov.: Cangyuan: Nangun River (a Salween

tributary), 0.5 km to Manglai on road from Banhong to Mangku, 23°16.49'N 99°04.34'E; coll. Zheng L., 15 Mar.2002.

Paratypes - 20 (44.0-93.0 mm SL)(18: SWFC 0203036-0203041, 0203044-0203054, 0203067; 2: CMK 18395), same data as holotype; 1 (86.0 mm SL)(SWFC 9902140), same locality; coll. Zhou Wei, 12 Feb.1999; 3 (81.0-96.2 mm SL)(SWFC 9503001-9503003), China: Yunnan Prov.: Cangyuan: Nangun River (a Salween tributary), Dahedi, 23°16.16'N 99°01.41'E, coll. Liu N. & Zhang Q., 12 Mar.1995.

Diagnosis. – *Schistura disparizona* is distinguished from all other species of the genus in Southeast Asia by the unique combination of the following characters: conspicuous dorsal and ventral adipose keels on caudal peduncle; 9½ branched dorsal-fin rays; 8-11 very narrow, closely-set, dark bars in anterior part of body and 5 wider bars posteriorly.



Fig. 1. *Schistura disparizona*, SWFC 0203035, holotype, 78.0 mm SL.

Description. – See Figure 1 for general appearance and Table 1 for morphometric data of holotype and 24 paratypes. A moderately deep-bodied nemacheiline with body depth about equal from nape to anal-fin origin, tapering backwards. Head slightly depressed; body slightly compressed anteriorly to compressed posteriorly. Pectoral fin reaching about halfway to pelvic-fin base. Axillary pelvic lobe present. Pelvic fin reaching about halfway to anal-fin origin; not or just reaching anus which is situated about one eye diameter in front of anal fin; origin below third branched dorsal-fin ray. Caudal fin deeply emarginate. Conspicuous dorsal crest between dorsal and caudal-fin bases and ventral crest between anal and caudal-fin bases. Caudal peduncle 0.9-1.4 times longer than deep. Distal margin of dorsal fin straight. Largest recorded size 96.2 mm SL.

Dorsal fin with 4 simple and 9½ branched rays. Anal fin with 3 simple and 5½ branched rays. Caudal fin with 9+8 branched rays. Pectoral fin with 11 rays. Pelvic fin with 8 rays.

Body covered by small embedded scales in posterior third, sparsely distributed in front and almost totally absent in anterior third. No scales on predorsal mid-line and on belly in front of pelvic-fin base. Lateral line almost complete, reaching posteriormost bar of body, with 92-96 pores. Cephalic lateral line system with 6 supraorbital, 4+11 infraorbital, 10 preoperculo-mandibular and 3 supratemporal pores.

Anterior nostril pierced in front side of a pointed flap-like tube. Mouth gape about 2.5 times wider than long (Fig. 2a).

Lips thick, anterior one with many feeble folds, posterior one with several furrows, especially along posterior edge of median part. A median incision in upper lip. A median interruption in lower lip. Processus dentiformis wide, low, broadly rounded. No median notch in lower jaw, but inner part of jaw concave medially. Inner rostral barbel not reaching corner of mouth; outer one reaching slightly beyond corner of mouth. Maxillary barbel reaching vertical through posterior margin of eye. Intestine with a loop immediately behind stomach (Fig. 2b).

Sexual dimorphism. – None observed.

Coloration. – Body background yellowish brown, with very contrasted dark brown markings on body. Between gill opening and dorsal-fin origin, 8-11 very closely-set, regular, dark bars, wider than interspaces, usually fused dorsally in various combinations to form 3-5 more or less distinct saddles along dorsum. From dorsal-fin origin to caudal-fin base, 5 bars, narrower than interspaces, wider on dorsal midline, three posterior ones meeting continuous across ventral midline; shape and position constant, as shown in Figure 1. Black basal caudal bar continuous, not reaching ventral and dorsal midlines. Top of head plain dark brown.

Dorsal fin with a small black spot at base of simple rays and first branched ray and with faint black marks occupying median half of length of all rays. Other fins pale grey.

Notes on biology. – Observed in shallow and narrow branches of stream, with gravel or stone bottom.

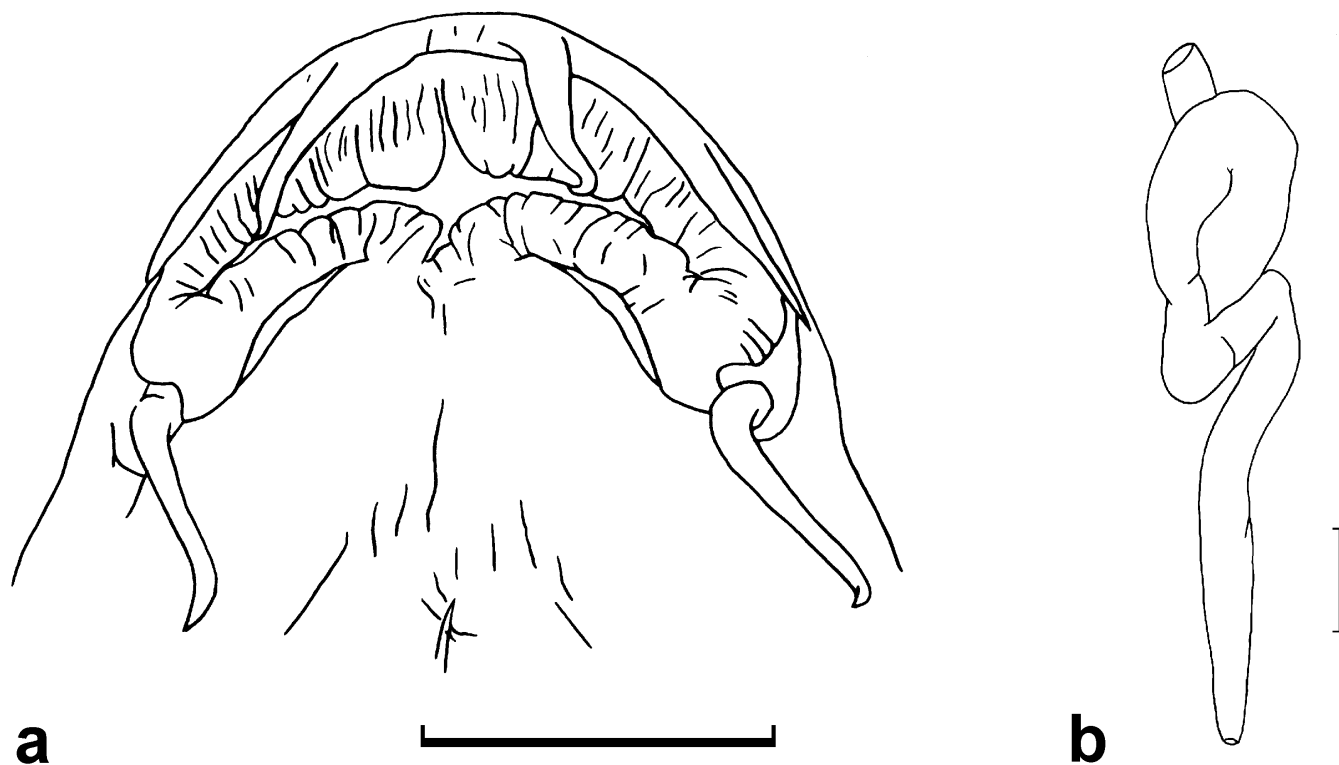


Fig. 2. *Schistura disparizona*, a, SWFC 0203035, holotype, 78.0 mm SL, mouth; b, SWFC 0203046, 61.0 mm SL, digestive tract. Scale bars 1 mm.

Table 1. Morphometric data of *Schistura disparizona* and *S. alticrista* (from Kottelat, 1990).

| | <i>S. disparizona</i> (n=25) | | | | <i>S. alticrista</i> (n=24) | | | | | | | |
|------------------------------|------------------------------|------|-------------|------|-----------------------------|--------|--------------|------|------|---------|-------|-----|
| | % SL | mean | range | S.D | % HL | mean | range | S.D | % HL | mean | range | S.D |
| Standard length [mm] | | | 44.0-96.2 | | | | | | | | | |
| Total length | 116.2 | | 111.0-119.5 | 1.87 | | | 46.8-70.9 | | | | | |
| Dorsal head length | 22.0 | | 14.2-26.8 | 2.29 | | | 117.5 -120.7 | 1.33 | | | | |
| Lateral head length | 24.2 | | 21.2-26.6 | 1.34 | 111 | 92-160 | 22.0-22.7 | 0.33 | | | | |
| Predorsal length | 47.9 | | 44.5-52.1 | 1.83 | | | 25.0-25.4 | 0.19 | 113 | 111-116 | 2.0 | |
| Pre-pelvic length | 55.2 | | 52.1-59.5 | 2.21 | | | 50.9-52.4 | 0.61 | | | | |
| Pre-anus length | 73.7 | | 68.2-78.1 | 2.74 | | | 51.3-54.5 | 1.38 | | | | |
| Preal anal length | 78.8 | | 73.5-86.2 | 2.99 | | | 70.5-72.6 | 0.91 | | | | |
| Head depth (at eye) | 11.8 | | 10.0-13.3 | 0.94 | 54 | 46-73 | 74.7-77.1 | 1.07 | | | | |
| Head depth (at nape) | 15.4 | | 12.8-18.5 | 1.44 | 71 | 54-115 | 9.8-11.8 | 0.85 | 49 | 45-54 | 3.8 | |
| Body depth | 19.5 | | 17.4-21.9 | 1.47 | 90 | 73-153 | 12.3-13.1 | 0.36 | 57 | 54-60 | 2.2 | |
| Depth of caudal peduncle | 14.3 | | 12.0-17.3 | 1.28 | 65 | 53-95 | 17.6-18.8 | 0.48 | 82 | 80-85 | 2.3 | |
| Length of caudal peduncle | 15.8 | | 13.7-18.6 | 1.23 | 73 | 54-109 | 15.0-17.7 | 1.12 | 73 | 68-78 | 4.0 | |
| Snout length | 10.6 | | 8.8-12.3 | 0.87 | 48 | 38-68 | 13.9-15.0 | 0.45 | 65 | 61-68 | 2.8 | |
| Head width (at nares) | 12.3 | | 10.4-14.3 | 1.14 | 56 | 42-74 | 10.3-11.4 | 0.48 | 49 | 47-52 | 2.2 | |
| Maximum head width | 16.8 | | 13.9-20.8 | 1.71 | 77 | 61-112 | 9.2-11.6 | 1.13 | 48 | 42-53 | 4.8 | |
| Body width (dorsal origin) | 14.2 | | 10.8-17.6 | 1.47 | 65 | 50-124 | 14.5-17.3 | 1.22 | 73 | 66-79 | 5.3 | |
| Body width (anal origin) | 7.9 | | 6.4-9.5 | 0.85 | 36 | 26-47 | 11.3-12.1 | 0.39 | 52 | 51-53 | 1.0 | |
| Eye diameter | 4.9 | | 3.8-5.8 | 0.56 | 23 | 16-32 | 6.2-7.5 | 0.51 | 31 | 28-33 | 1.9 | |
| Interorbital width | 6.4 | | 5.2-7.4 | 0.51 | 29 | 21-42 | 4.2-4.7 | 0.18 | 20 | 19-21 | 0.6 | |
| Height of dorsal fin | 14.2 | | 11.5-17.6 | 1.61 | 65 | 49-100 | 4.3-5.7 | 0.64 | 23 | 19-25 | 2.7 | |
| Length of upper caudal lobe | 17.5 | | 15.0-20.2 | 1.34 | 80 | 63-122 | 13.4-18.2 | 2.11 | 68 | 61-83 | 10.0 | |
| Length of lower caudal lobe | 17.3 | | 14.6-20.2 | 1.32 | 80 | 59-124 | 19.0-21.1 | 0.95 | 92 | 87-95 | 3.7 | |
| Length of median caudal rays | 13.0 | | 10.8-15.9 | 1.12 | 60 | 43-94 | 19.9-22.9 | 1.33 | 98 | 90-104 | 5.6 | |
| Depth of anal fin | 15.4 | | 13.4-17.4 | 1.03 | 71 | 52-109 | 14.8-16.0 | 0.55 | 69 | 66-73 | 3.1 | |
| Length of pelvic fin | 16.5 | | 14.5-20.2 | 1.30 | 76 | 57-118 | 16.8-18.4 | 0.65 | 79 | 76-83 | 3.1 | |
| Length of pectoral fin | 19.6 | | 16.1-23.6 | 1.69 | 90 | 71-137 | 16.8-17.7 | 0.41 | 77 | 74-81 | 2.7 | |
| | | | | | | | 19.2-20.5 | 0.61 | 90 | 87-93 | 2.5 | |

Distribution. – River Nangun, a tributary of the Salween (Nu Jiang), in Cangyuan district, Yunnan, China. The species has only been collected at the type locality.

Etymology. – From the Latin *dispar* (dissimilar) and *zona* (band). A noun phrase, treated as a noun in apposition.

Remarks. – *Schistura disparizona* is distinguished from all other nemacheilinae known from Southeast Asia by its unique colour pattern (see above and Fig. 1). It shares with *S. alticrista* Kottelat (1990: 98) the high adipose crests on the caudal peduncle, the shape of the black basal caudal bar and the 9½ branched dorsal rays (most other *Schistura* have 7-8½). *Schistura alticrista* is known only from the Salween basin in Thailand. It is distinguished from *S. disparizona* by having 8-9 bars on body, the 4-5 posterior ones as wide as interspaces (vs. conspicuously wider), the interspaces being about equal on the whole body (vs. very narrow interspaces in front of dorsal-fin origin), and 2-3 predorsal bars (vs. 8-11).

The contrast between the pale posterior part of body and the dark part in front of the dorsal-fin origin is reminiscent of the colour pattern of *S. balteata* Rendahl, 1948, from Tenasserim (Myanmar) and Mae Khlung drainage and adjacent area of northern Malay peninsula in Thailand, but in *S. balteata* there are only 2-3 bars below the dorsal fin and the pale area is restricted to the area between the bars. Furthermore, *S. balteata* differs in having 7½ branched dorsal-fin rays (vs. 9½), 8+8 branched caudal-fin rays (vs. 9+8), and an incomplete lateral line, with 24-50 pores, reaching at most to above anal-fin origin (vs. almost complete).

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