



## ***Devario fangae* and *Devario myitkyinae*, two new species of danionin cyprinids from northern Myanmar (Teleostei: Cyprinidae: Danioninae)**

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### **Abstract**

*Devario* comprises 38 potentially valid species in southern Asia. Ten species of *Devario* have been reported so far from Myanmar, six of which belong in the group of striped devarios, with predominantly horizontal stripes in the colour pattern. Among them, records of *D. aequipinnatus* most likely represent misidentifications. Remaining species of striped devarios in Myanmar are known only from brief descriptions and are in need of taxonomic revision. *Devario yuensis* and *D. deruptotalea*, known previously only from India, are here reported for the first time from Myanmar. *Devario fangae*, new species, is described on the basis of specimens collected in 1998 from small streams in Putao in the extreme north of Myanmar. These streams drain to the Mali Hka River, a tributary of the Ayeyarwaddy River. *Devario fangae* shares uniquely with *D. browni* and *D. kakhienensis* an anterior expansion in width of the middle dark stripe on the side (P stripe). It differs from *D. browni* and *D. kakhienensis* in presence of a broad P stripe, wider than adjacent interstripes, vs. narrow, as wide as or narrower than interstripes. *Devario fangae* is further similar to other species of *Devario* characterized by three dark stripes (P, P+1, P-1) along the side, but differs from these in having all three stripes wide and of about equal width vs. P stripe wide and P+1 and P-1 stripes much narrower. The largest specimen of *D. fangae* is 61.0 mm SL. Females are significantly more deep-bodied than males. A specimen of *D. aequipinnatus* reported from Putao in 1919 probably represents *D. fangae*.

*Devario myitkyinae*, new species, is described on the basis of specimens collected in 1997 and 1998 from a stream and lake in the Ayeyarwaddy River drainage near Myitkyina in northern Myanmar. It is similar to *D. browni* and *D. kakhienensis*, but different from *D. fangae* in having horizontal stripes on side equal in width, narrow, irregular, and to some extent curved away from horizontal extension. *Devario myitkyinae* differs from *D. browni*, *D. kakhienensis*, and *D. fangae* in absence of anterior widening of the P stripe. *Devario myitkyinae* is similar to other species of *Devario* characterized by three dark stripes (P, P+1, P-1) along the side, but differs from these in having all three stripes irregular and of equal width vs. stripes regular, P stripe wide and P+1 and P-1 stripes much narrower. The largest wild specimen of *D. myitkyinae* is 68.7 mm SL. A specimen collected near Myitkyina and reported as *D. aequipinnatus* in 1929 probably represents *D. myitkyinae*.

Key words: Asia, colour pattern, fishes, freshwater, geographical distribution, morphometrics, sexual dimorphism, systematics, taxonomy

### **Introduction**

The cyprinid fish genus *Devario* Heckel, 1843, is distributed in South Asia in Bhutan, India, Myanmar, Nepal, Pakistan, and Sri Lanka, and also widespread in Southeast Asia in southern China, Cambodia, Laos, Malaysia, Vietnam, and Thailand (Fang, 2001). Species of *Devario* are mostly of relatively small size, less than 10 cm SL, and most species are found in small schools in hillstreams. *Devario* was partly reviewed by Fang (1997a–b, 2000a–b, 2001, 2003) and Fang & Kottelat (1999), and some species of the genus have been included in phylogenetic analyses at danionin or cyprinid level (e.g., Fang, 2003; Fang *et al.*, 2009; Pramod *et al.* 2010; Tang *et al.*, 2010). Fang (2001) listed 46 nominal and 34 potentially valid species of *Devario*. More recent descriptions include *D. anomalus* Conway, Mayden & Tang, 2009, from southeastern Bangladesh and *D. xyrops* Kullander & Fang, 2009, from the adjacent western slope of the Rakhine Yoma in Myanmar, *D. deruptotalea* Ramananda & Vishwanath, 2014, from the Chindwin basin in India, and three species from Vietnam, *Danio muongthanensis*

Nguyen, 2001 [= *Devario laoensis* (Pellegrin & Fang, 1945)], *Danio trangi* Ngô, 2003 [= *Devario quangbinhensis* (Tu, Thang & Khoa, 1998)], and *Devario kyonensis* (Nguyen, Nguyen & Mu, 2010). Nevertheless many species have not been subjected to taxonomic revision, and numerous species remain to be formally described.

Two groups of species can be distinguished among *Devario* based on colour pattern – one characterized by vertical bars anteriorly on the side (barred devarios), the other containing species most of which have a colour pattern including horizontal stripes (striped devarios) (Fang, 2001). Kottelat (2013) referred the former group to *Inlecyrpris* Howes, 1980. Relatively few species of *Devario* have been included in published phylogenetic analyses, however, and variation in colour pattern within the genus in the suggested restricted sense is considerable, for which reasons it may be advisable to retain the barred devarios in *Devario*.

Six species of striped devarios have been reported so far from Myanmar, viz. *D. aequipinnatus* M'Clelland, 1839 (e.g., Chaudhuri, 1919; Prasad & Mukerji, 1929), *D. affinis* (Blyth, 1860), *D. annandalei* (Chaudhuri, 1908), *D. browni* (Regan, 1907), *D. spinosus* (Day, 1870), and *D. strigillifer* (Myers, 1924). The specimens of *D. aequipinnatus* are certainly misidentified as this species is restricted to the Ganga-Brahmaputra-Meghna basin. The remainder were only briefly described from localities in Myanmar, and without illustration. Four species of barred devarios are known from Myanmar, viz. *D. auropurpureus* (Annandale, 1918), *D. jayarami* (Barman, 1985), *D. shanensis* (Hora, 1928), and *D. sondhii* (Hora & Mukerji, 1934), all from the Thanlwin basin.

Attention here is given to two of several undescribed species of striped devarios from Myanmar. Both were collected a long time ago and it seems pertinent not to delay further the formal description of these taxa.

## Material and methods

Counts and measurements were made according to Fang (1997a). Colour pattern terminology follows Fang (1998) and Kullander (2015). Horizontal dark stripes are identified by alphanumeric annotations: the P stripe is the dark stripe along the middle of the side, those above are numbered P+1, P+2, those below P-1, P-2, P-3. Light stripes between P stripes are recorded as interstripes, and identified by alphanumeric annotations: Interstripe I is the one ventral to the P stripe, and when present successive stripes are I+1 and I+2 dorsally, and I-1 and I-2 ventrally. The infraorbital process is a variably shaped short process rising laterad from the adocular margin of infraorbital 1 (Fang, 2003). It has also been called preorbital spine (e.g., Barman, 1991; Fang 1997a). The supraorbital process is a short sharp superiorly directed projection on the dorsal surface of the supraorbital, first noted in *Devario spinosus* by Day (1870). Fin-ray counts from pectoral, pelvic, dorsal and anal fins were obtained directly from the specimens under a dissection microscope with transmitted light. Counts of vertebrae were obtained from X-radiographs made with a Philips MG-105 low voltage X-ray unit and Kodak X-Omat V plates. Abdominal vertebrae counts include the Weberian apparatus (assumed to contain four centra). Statistics were calculated using SYSTAT v. 13 (Systat Software, 2009).

Specimens are kept in the following collections: ANSP, Academy of Natural Sciences of Drexel University, Philadelphia; BMNH, Natural History Museum, London; CMK, collection of Maurice Kottelat, Delémont, Switzerland; CUMV, Cornell University Museum of Vertebrates, Ithaca; MZLU, Zoological Museum, Lund University, Lund; NRM, Swedish Museum of Natural History, Stockholm; ZMA, Naturalis Biodiversity Center, Leiden; UMMZ, University of Michigan, Museum of Zoology, Ann Arbor; USNM, National Museum of Natural History, Smithsonian Institution, Washington.

**Comparative material.** *Devario acuticephala* (Hora, 1921), ZMA 115.793; *D. acrostomus* (Fang & Kottelat, 1999), NRM 41281 (holotype); *D. aequipinnatus*, NRM 47424, 52692; *D. affinis*, NRM 58062; *D. annandalei*, NRM 51691; *D. apopyris*, CMK 14316; *D. browni*, BMNH 1907.10.22.1–4 (syntypes); *D. chrysotaeniatus* (Chu, 1981), NRM 32196; *D. deruptotalea* Ramananda & Viswanath, 2014, NRM 58920; *D. devario* (Hamilton, 1822), NRM 26409, UMMZ 243656; *D. fangfangae* (Kottelat, 2000), NRM 44882; *D. fraseri* (Hora & Mukerji, 1935), BMNH 1938.2.22:25–31; *D. gibber* (Kottelat, 2000), NRM 44883 (holotype); *D. kakhienensis* (Anderson, 1879), NRM 32197; *D. laoensis*, NRM 41283; *D. leptos* (Fang & Kottelat, 1999), NRM 41279 (holotype); *D. malabaricus* (Jerdon, 1849), NRM 12162; *D. micronema* (Bleeker, 1863), MZLU L962/5267159; *D. neilgherriensis* (Day, 1867), BMNH 1889.1.2:17735–1734; *D. regina* (Fowler, 1934), USNM 101380; *D. spinosus*, BMNH 1889.2.1.12.51 (syntype); *D. strigillifer*, NRM 45663; *D. xyrops* Fang & Kullander, 2009, material listed in Fang & Kullander (2009); *D. yuensis* (Kumar & Singh, 1998), NRM 69378.

## *Devario fangae*, new species

(Figs. 1–3)

**Holotype.** NRM 45659. Male, 47.9 mm SL; Myanmar, Kachin State, Putao, Ayeyarwaddy River drainage, Nan Hto Chaung, in Putao, ca. 1 mile from 46th regiment, close to rice mill, 27°19'44"N 97°22'36"E; 27 Mar 1998. S.O. Kullander & R. Britz (SOK-98-021A).

**Paratypes.** NRM 40918, 13, 43.0–61.0 mm SL; NRM 40919, 3, 36.5–55.7 mm SL; NRM 40930, 52, 10.9–18.9 mm SL; NRM 41677, 1, ca. 20 mm SL; NRM 41678, 1, 23.5 mm SL; NRM 69442, 30, 29–58.7 mm SL; NRM 69443, 9, 21.0–26.1 mm SL; NRM 69444, 15, 32.6–46.2 mm SL; NRM 69447, 10, 26.9–33.8 mm SL; Same data as holotype.—NRM 40942, 57, 11.9–25.4 mm SL; NRM 41274, 15, 12.6–18.3 mm SL; NRM 69439, 11, 34.7–51.3 mm SL; NRM 69440, 31, 29.1–50.0 mm SL; NRM 69441, 25, 24.6–31.0 mm SL; Myanmar, Kachin State, Putao, Ayeyarwaddy River drainage, Ma Kyaw Wa Chaung and its tributary Nan Hto Chaung, in Putao, ca 1 mile from 46th regiment, approximately 27°19'44"N 97°22'36"E; 28 Mar 1998, S.O. Kullander & R. Britz (SOK-98-021B).

**Diagnosis.** *Devario fangae* shares uniquely with *D. browni* and *D. kakhienensis* an anterior expansion in width of the P stripe. It differs from *D. browni* and *D. kakhienensis* in presence of a broad P stripe, wider than adjacent interstripes, vs. narrow, as wide as or narrower than interstripes. *Devario fangae* is further similar to species of *Devario* characterized by three dark stripes (P, P+1, P-1) along the side, but differs from these in having all three stripes wide and of similar width vs. P stripe wide and P+1 and P-1 stripes much narrower as in *D. aequipinnatus*, *D. acrostomus*, *D. deruptotalea*, *D. fangfangae*, *D. fraseri*, and *D. gibber*. In *D. regina* and *D. malabaricus*, the stripes are relatively wide but not wider than interspaces and the P stripe is split anteriorly by a short light interspace.

The status and diagnoses of *D. assamensis* (Barman, 1984) from the Brahmaputra River in southern Assam, and *D. ostreographus* (McClelland, 1839), without locality, are uncertain, but both were described as extremely deep-bodied, and thus unlikely to be confused with *D. fangae*. From *D. devario*, *D. fangae* can be distinguished by presence vs. absence of infraorbital process and rostral barbel; distinct vs. very shallow danionine notch; 9½–11½ vs. 15½–17½ dorsal-fin rays; 30–32 vs. 42–47 lateral line scales; and 12 vs. 16 circumpeduncular scales.

From other species of *Devario* in Myanmar, *D. fangae* can be distinguished from nominal species *D. affinis*, *D. annandalei*, *D. strigillifer*, *D. spinosus* and *D. yuensis* by fewer scales in the lateral line (30–32, vs. 35–53); fewer circumpeduncular scales (12 vs. 14–20; and absence of a supraorbital process. It differs from *D. xyrops* in having a continuous P stripe vs. P stripe separated into two blotches. It differs from *D. mythyinae* by the colour pattern, characterized by three dark, straight horizontal stripes on the middle of the side, vs. up to five irregular stripes; branched dorsal-fin rays 9½–10½, exceptionally 11½, vs. 11½–13½, exceptionally 10½; and branched anal-fin rays 9½–11½ vs. 12½–13½, exceptionally 11½ or 14½,

*Devario fangae* can be distinguished from all remaining species of *Devario* also by the striped colour pattern, vs. a pattern of large blotches as in *D. kyonensis*, *D. pathirana*, or smaller blotches as in *D. quangbinhensis*; a very narrow posterior P stripe as in *D. chrysotaeniatus*, *D. laoensis*, *D. leptos*, *D. micronema*, *D. neilgherriensis*; vertical bars as in *D. apogon*, *D. apopyris*, *D. auropurpureus*, *D. interruptus*, *D. jayarami*, *D. maetaengensis*, *D. salmonatus*, *D. shanensis*; uniform, with or without a thin dark stripe posteriorly on the side as in *D. acuticephala* and *D. sondhii*; P stripe separated into two blotches as in *D. anomalus*; or wide P stripe posteriorly on side, but no other dark stripes as in *D. naganensis*. From barred devarios, *D. fraseri*, and *D. malabaricus*, *D. fangae* can be distinguished further by presence vs. absence of infraorbital process.

**Description.** Based on specimens in measurement series, with notes on variation. Largest female 61.0 mm SL, largest male 58.8 mm SL. Measurements are presented in Tables 1–2. Counts for holotype are marked with an asterisk.

Body laterally compressed, elongate. Females deeper, prepelvic and preanal distances greater, than in males (Fig. 3, Table 2). Predorsal contour straight or slightly curved, ascending, with slight indentation marking position of lateralis canal of temporal commissure; sloping posteriorly from dorsal-fin insertion. Prepelvic contour curved, more so in females; chest compressed below pectoral fin, but not keeled. Snout short, rounded in dorsal aspect, subtriangular in lateral aspect, about as long as eye diameter in lateral aspect, relatively shorter in juveniles. Infraorbital process laminar, about twice as broad as high, with truncate or slightly concave distal margin. Danionine notch caudally margined by blunt anteromedial projecting laminar dentary process. Skin cover absent

from distal part of infraorbital process, dentary process, and anterior margin of supraorbital. Mouth terminal, obliquely directed upwards. Small knob at dentary symphysis, fitting in depression in upper jaw. Maxilla reaching to below anterior margin of orbit. Jaws equal anteriorly; lower jaw ending anteriorly at horizontal through middle of eye, posteriorly at vertical through middle of eye. Lower jaw with large conical tubercles in band of 3–4 rows mediodorsally, band tapering to single row of tubercles symphysially and posteriorly. Males with strong, densely arranged sharp-tipped conical tubercles in narrow bands on anterior 5 branched rays of pectoral fin; smallest specimen with pectoral-fin tubercles 34.7 mm SL. Rostral barbel short, reaching slightly beyond base of maxillary barbel; maxillary barbel much shorter, less than half length of rostral barbel, not reaching below middle of orbit.

**TABLE 1.** Morphometry of *Devario fangae* (specimens out of NRM 40918–40919, 45659, 69440, 69442). Measurements are in percent of standard length (SL), except for standard length, in mm. Correlation (Pearson's  $r$ ), and linear regression parameters ( $y=a+b*SL$ ) were calculated from original measurements in mm, and are given only where  $r \geq 0.90$ ; SD = standard deviation. HT = holotype.

	HT	n	min	max	mean	SD	a	b	r
SL (mm)	47.9	20	43.0	61.0	50.3	5.1			
Body depth	30.3	20	29.3	36.5	32.6	2.2			
Head length	24.8	20	24.0	26.9	25.5	0.8	2.533	0.205	0.95
Snout length	7.3	20	6.7	7.7	7.3	0.3	-0.263	0.079	0.96
Head depth	19.4	20	18.7	20.8	19.8	0.6	0.889	0.180	0.95
Head width	14.0	20	13.4	15.2	14.2	0.5	0.696	0.128	0.94
Upper jaw length	11.1	20	9.7	11.5	10.5	0.5			
Lower jaw length	13.4	20	12.1	14.3	13.1	0.6	1.322	0.104	0.90
Orbit diameter	9.4	20	8.4	10.2	9.2	0.5	1.982	0.052	0.90
Interorbital width	11.3	20	10.4	12.0	11.2	0.3	0.766	0.097	0.95
Caudal-peduncle length	19.8	20	17.8	21.0	19.3	0.9	-0.373	0.201	0.90
Caudal-peduncle depth	11.7	20	11.7	13.8	12.6	0.5	-1.36	0.153	0.96
Dorsal-fin base length	19.2	20	17.7	22.5	19.8	1.4			
Anal-fin base length	18.8	20	16.5	19.7	18.0	1.1	-1.633	0.213	0.90
Predorsal length	56.2	20	54.2	61.1	58.0	1.8	2.670	0.526	0.95
Preanal length	64.3	20	60.9	70.1	66.7	2.4	4.188	0.583	0.93
Prepelvic length	45.9	20	45.1	51.6	48.4	1.8	2.656	0.411	0.93
Pectoral-fin length	23.4	20	21.3	24.8	22.7	0.8	1.096	0.205	0.93
Pelvic-fin length	16.1	20	14.0	21.9	16.0	1.6			
Rostral barbel length	6.3	20	3.9	7.1	5.8	0.7			
Maxillary barbel length	1.9	20	1.3	2.8	2.0	0.4			

Lateral line complete, along 30 (8), 31\* (7), 32 (5) scales, and 2 scales on caudal-fin base; comprising one tubed scale followed by a canal running steeply caudoventrad under about 5 unperforated scales to slightly posterior to pectoral-fin base, where curved caudad and represented by perforated scales running in a curve parallel to the ventral body outline and ending low on caudal peduncle and caudal-fin base; continued by two scales on caudal-fin base. Median predorsal scales 13 (8), 14\* (12). Lateral scale rows passing between dorsal and pelvic fins  $\frac{1}{2}7+1+2\frac{1}{2}$ \* (20). Circumpeduncular scale rows 12\* (20). A row of scales along anal-fin base. About  $\frac{1}{4}$  of caudal-fin length scaled basally.

Dorsal-fin rays iii.9 $\frac{1}{2}$  (2), iii.10 $\frac{1}{2}$ \* (16), iii.11 $\frac{1}{2}$  (2). Anal-fin rays iii.9 $\frac{1}{2}$  (1), iii.10 $\frac{1}{2}$  (12), 11 $\frac{1}{2}$ \* (7). Pectoral-fin rays i.10 (3), i.11\* (8), i.12 (9). Pelvic-fin rays i.6 (1) i.7\* (19). Dorsal fin inserted at highest point of dorsum, little posterior to middle of body; distal margin straight, rays increasing in length to first branched ray, posterior rays gradually slightly shorter, last ray about  $\frac{2}{3}$  length of first branched ray, not reaching to middle of caudal peduncle. Anal fin inserted below anterior rays of dorsal fin; distal margin about straight, except last unbranched and first branched rays forming short extended tip; rays increasing in length to first branched ray, posterior rays

gradually slightly shorter, last ray about half the length of first branched ray, reaching to middle of caudal peduncle. Pectoral-fin insertion at about vertical through posterior margin of osseous opercle; pectoral fin extending to pelvic-fin origin or, usually, slightly shorter. Pectoral-fin axial lobe well developed. Pelvic fin inserted slightly anterior to midbody, not reaching to anal-fin origin. Pelvic axillary scale present. Caudal fin forked, lobes of about equal length.

Vertebrae 16+15=31 (1), 16+16= 32 (2), 16+17=33 (1), 16+18=34\* (1), 17+16=33 (6), 17+17=34 (9). Pharyngeal teeth 2,3,5/5,3,2 (NRM 40918, 48.8 mm SL).



**FIGURE 1.** *Devario fangae*. (a) holotype, NRM 45659, male, 47.9 mm SL; (b) paratype, NRM 40919, male 58.5 mm SL; c) paratype, NRM 69442, female, 49.2 mm SL. All from Kachin State, Putao, Ayeyarwaddy River drainage, Nan Hto Chaung.

**Colouration in preservative.** Dorsum pale grey or brown, sides pale yellowish white, abdomen white. Opercle pale brownish, grey or silvery depending on preservation. Sides of head sparsely pigmented. Narrow dark brown middorsal stripe from occiput to end of caudal peduncle. Dark brown or black, vertically extending cleithral spot covering part of first lateral-line scale and scale above. Dark brown or black broad P stripe, posteriorly one scale wide, anteriorly slightly widened to 1½ scale depth, from end of caudal peduncle rostrad to above pelvic-fin insertion (young, many adult females), or close to gill opening (most males, some adult females). P stripe bordered dorsally by narrow interstripe I. P+1 stripe brown or dark grey, parallel with P stripe, about one scale wide on middle, narrowing and fading on caudal peduncle and anteriorly on flank. P+1 stripe bordered dorsally by narrow interstripe I+2. No distinct P+2 stripe. Wide brown or dark grey P-1 stripe paralleling P stripe, tapering caudad and

not reaching end of caudal peduncle. Indistinct P-2 stripe in many specimens, fading separated from P-1 stripe by narrow indistinct I-1 interstripe. In specimens in which horizontal stripes not reaching head region dark pigment suffused over area anterior to P stripe, but no pattern formed. P stripe generally more contrasted in males than in females, and anterior terminal blotch variably developed. P stripe and cleithral spot present in juveniles 19 mm SL, adult pattern developing gradually (Fig. 2). A few young specimens with aberrant colour pattern due to curvature and congruence of interstripes I and I+1, forming an oblong blotch (Fig. 2b), or fragmentation of interstripe I.

Dorsal and anal fins lightly pigmented, without markings; caudal fin basally lightly pigmented along middle rays, most of fin hyaline. Pectoral and pelvic fins hyaline.



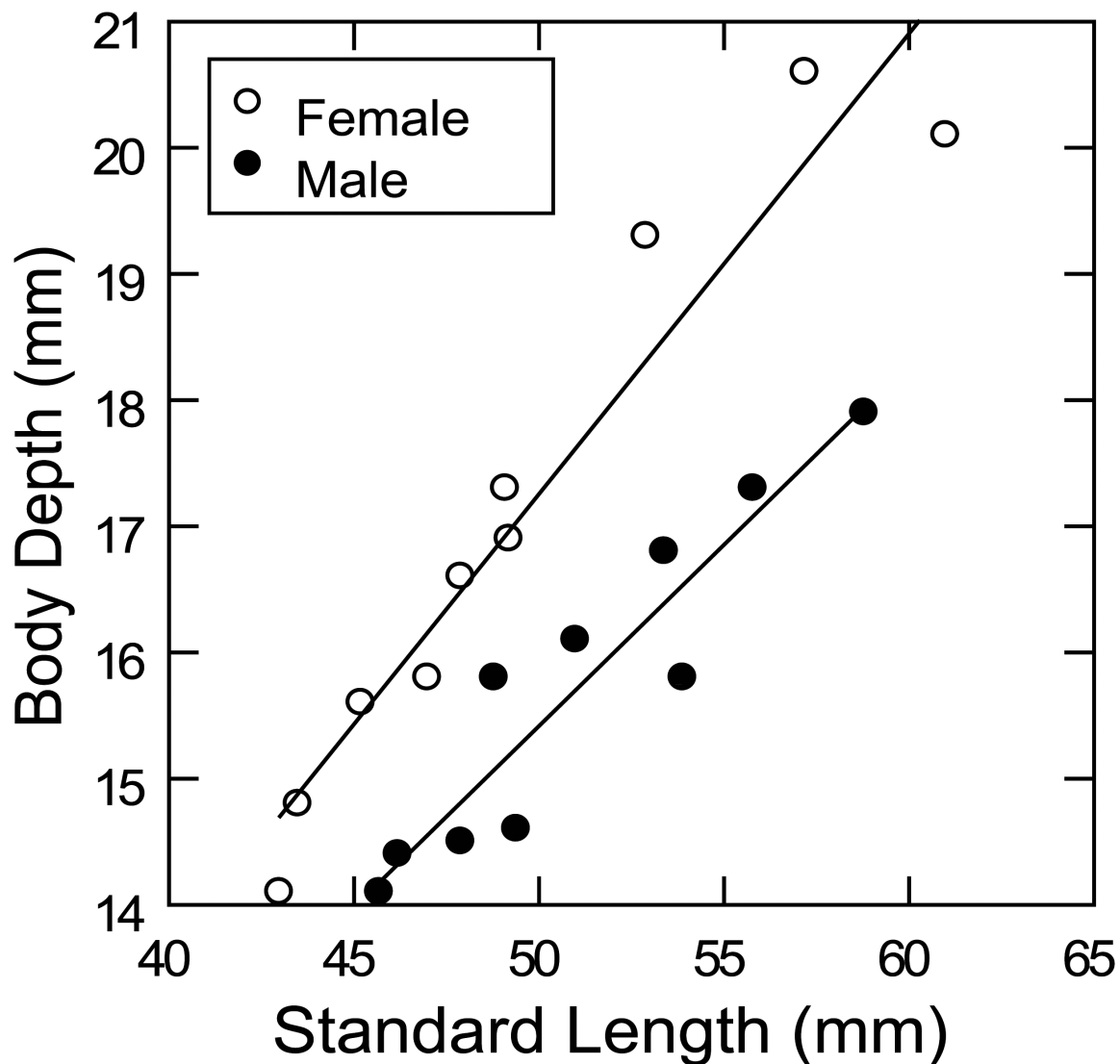
**FIGURE 2.** *Devario fangae*. (a) paratype NRM 69440, 30.0 mm SL; (b) paratype, NRM 69442, 43.4 mm SL. Both from Kachin State, Putao, Ayeyarwaddy River drainage, Nan Hto Chaung.

**Geographical distribution** (Fig. 3). Known only from small hillstreams near Putao, northern Myanmar. At the time of collecting in the low water season, the streams, in a setting of hilly low forests, were shallow, mostly less than 0.5 m deep, rarely more than 3 m wide, with clear water running over gravel, rocks or sand (Kullander, 2012: fig. 10). The velocity was relatively fast, including frequent riffles. Syntopic species included *Amblyceps murraystuarti* (Amblycipitidae), *Barilius barnoides*, *Danio flagrans*, *Garra* sp., *Pethia tiantian*, *Puntius compressus* (Cyprinidae), *Badis pyema* (Badidae), *Batasio procerus* (Bagridae), *Heteropneustes fossilis* (Clariidae), *Mastacembelus armatus* (Mastacembelidae), *Acanthocobitis* sp., *Schistura* sp. (Nemacheilidae), and *Psilorhynchus brachyrhynchus* (Psilorhynchidae). A single specimen of *Devario aequipinnatus* was reported by Chaudhuri (1919) from Putao. Based on Chaudhuri's short description it probably represents *D. fangae*.

**Etymology.** This species was singled out by the late Fang Fang (1962–2010) for description as new, including separation of the holotype, and it seems pertinent to attach her name to it as the proper discoverer, and also recognizing her deep personal interest in the freshwater fishes of Myanmar. A noun in the genitive case.

**TABLE 2.** Morphometry of *Devario fangae* by sex (specimens out of NRAM 40918–40919, 45659, 69440, 69442). Measurements are in percent of standard length (SL), except for standard length, in mm. Correlation (Pearson's *r*), and linear regression parameters ( $y=a+b*SL$ ) were calculated from original measurements in mm, and are given only where  $r \geq 0.9$ , SD = standard deviation. Sex dimorphic or potentially sex dimorphic proportions in bold.

	Males										Females									
	n	min	max	mean	SD	a	b	r	n	min	max	mean	SD	a	b	r				
SL (mm)	10	45.7	58.8	51.1	4.3				10	43.0	61.0	49.6	5.9							
Body depth	10	<b>29.3</b>	<b>32.4</b>	30.8	0.9	1.062	0.287	0.94	10	<b>32.8</b>	<b>36.5</b>	34.5	1.2	-0.992	0.365	0.96				
Head length	10	24.1	26.9	25.5	0.8	2.725	0.201	0.92	10	24.0	26.7	25.6	0.8	2.477	2.477	0.97				
Snout length	10	6.7	7.7	7.4	0.3	0.163	0.07	0.90	10	6.9	7.5	7.3	0.2	0.483	0.083	0.98				
Head depth	10	18.7	20.2	19.6	0.5	1.263	0.171	0.94	10	18.7	20.8	20.0	0.6	0.532	0.189	0.96				
Head width	10	13.4	15.2	14.0	0.5	1.776	0.105	0.92	10	13.7	15.1	14.4	0.5	-0.05	0.145	0.97				
Upper jaw length	10	9.7	11.5	10.7	0.5				10	9.8	11.5	10.4	0.5	1.156	0.08	0.91				
Lower jaw length	10	12.5	13.5	12.9	0.3	0.544	0.119	0.96	10	12.1	14.3	13.2	0.7							
Orbit diameter	10	8.6	9.4	9.1	0.3	1.387	0.063	0.93	10	8.4	10.2	9.3	0.6	2.257	0.047	0.90				
Interorbital width	10	10.4	11.4	11.0	0.3	0.671	0.097	0.93	10	11.0	12.0	11.3	0.3	0.687	0.099	0.98				
Caudal-peduncle length	10	17.8	21.0	19.2	1.0				10	17.9	20.8	19.4	1.0	-0.982	0.214	0.94				
Caudal-peduncle depth	10	11.7	13.6	12.5	0.5	-1.814	0.161	0.956	10	12.1	13.8	12.7	0.5	-1.236	0.152	0.97				
Dorsal-fin base length	10	17.8	22.5	20.4	1.6				10	17.7	20.7	19.2	0.9	-1.608	0.225	0.95				
Aanal-fin base length	10	16.8	19.7	18.7	1.0				10	16.5	18.1	17.3	0.6	-0.899	0.192	0.97				
Predorsal length	10	<b>54.2</b>	<b>57.9</b>	56.5	1.1	3.207	0.502	0.97	10	<b>57.5</b>	<b>61.1</b>	59.4	1.1	1.083	0.572	0.99				
Preal length	10	<b>60.9</b>	<b>67.8</b>	64.9	1.9	6.125	0.529	0.94	10	<b>66.7</b>	<b>70.1</b>	68.5	1.1	1.559	0.653	0.99				
Prepelvic length	10	<b>45.1</b>	<b>49.9</b>	47.0	1.3	5.068	0.37	0.96	10	<b>48.9</b>	<b>51.6</b>	49.8	0.7	1.643	0.465	0.99				
Pectoral-fin length	10	21.3	23.4	22.6	0.8	3.111	0.165	0.92	10	21.6	24.8	22.9	0.9	-0.077	0.23	0.95				
Pelvic-fin length	10	15.2	21.9	16.7	1.9				10	14.0	16.9	15.4	0.9	-1.261	0.18	0.94				
Rostral barbel length	10	3.9	7.1	5.8	0.9				10	4.5	6.6	5.9	0.6							
Maxillary barbel length	10	1.5	2.8	2.1	0.4				10	1.3	2.5	1.9	0.4							



**FIGURE 3.** *Devario fangae*. Plot of body depth on standard length by sex, based on sample from out of NRM 40918–40919, 45659, 69440, 69442, 10 males, 10 females. Regression lines are significantly different (ANCOVA,  $p = 0$ ).

***Devario myitkyinae*, new species**

(Figs. 4–5)

**Holotype.** NRM 69501, adult male, 65.8 mm SL; Myanmar, Kachin State, Ayeyarwaddy River drainage, Hpa Lap stream ca. 3 km north of Yuzana Myaing (8 km to left from Myitkyina–Myitzon road km 11), 25°32'3"N 97°23'22"E; 1 Apr 1997. F. Fang & A. Roos. (FANG-97-049).

**Paratypes.** CUMV 46752. 2, 48.8–78.3 mm SL. No locality data. R.W. Harrington.—NRM specimens all from Myanmar, Kachin State, Ayeyarwaddy River drainage: NRM 36362, 2, 58–65.2 mm SL. Hpa Lap Chaung just south of Yuzana Myaing village (8 km left from Myitkyina–Myitzon road km 11), 25°31'25"N 97°22'19"E. 1 Apr 1997. F. Fang & A. Roos (FANG-97-051).—NRM 36363, 7, 44.0–66.3 mm SL. Hpa Lap Chaung ca. 5.6 km north of Yuzana Myaing (8 km to left from Myitkyina–Myitzon road km 11), 25°32'8"N 97°23'20"E. 1 Apr 1997. F. Fang & A. Roos (FANG-97-050).—NRM 36364, 5, 42.8–65.4 mm SL; NRM 37309, 1, 57.4 mm SL. Same data as holotype.—NRM 37290, 1, 68.7 mm SL. Stream about 24 km on road Myitkyina–Myitzon, 25°33'46"N 97°29'30"E. 3 Apr 1997. F. Fang & A. Roos (FANG-97-056).—NRM 40917, 2, 46.1–61.0 mm SL. Naung Sad Chaung, isolated lake close to Ayeyarwaddy River 4 miles south of Myitkyina, 25°20'37"N 97°23'52"E. 26 Mar 1998. S.O. Kullander & R. Britz (SOK-98-020).



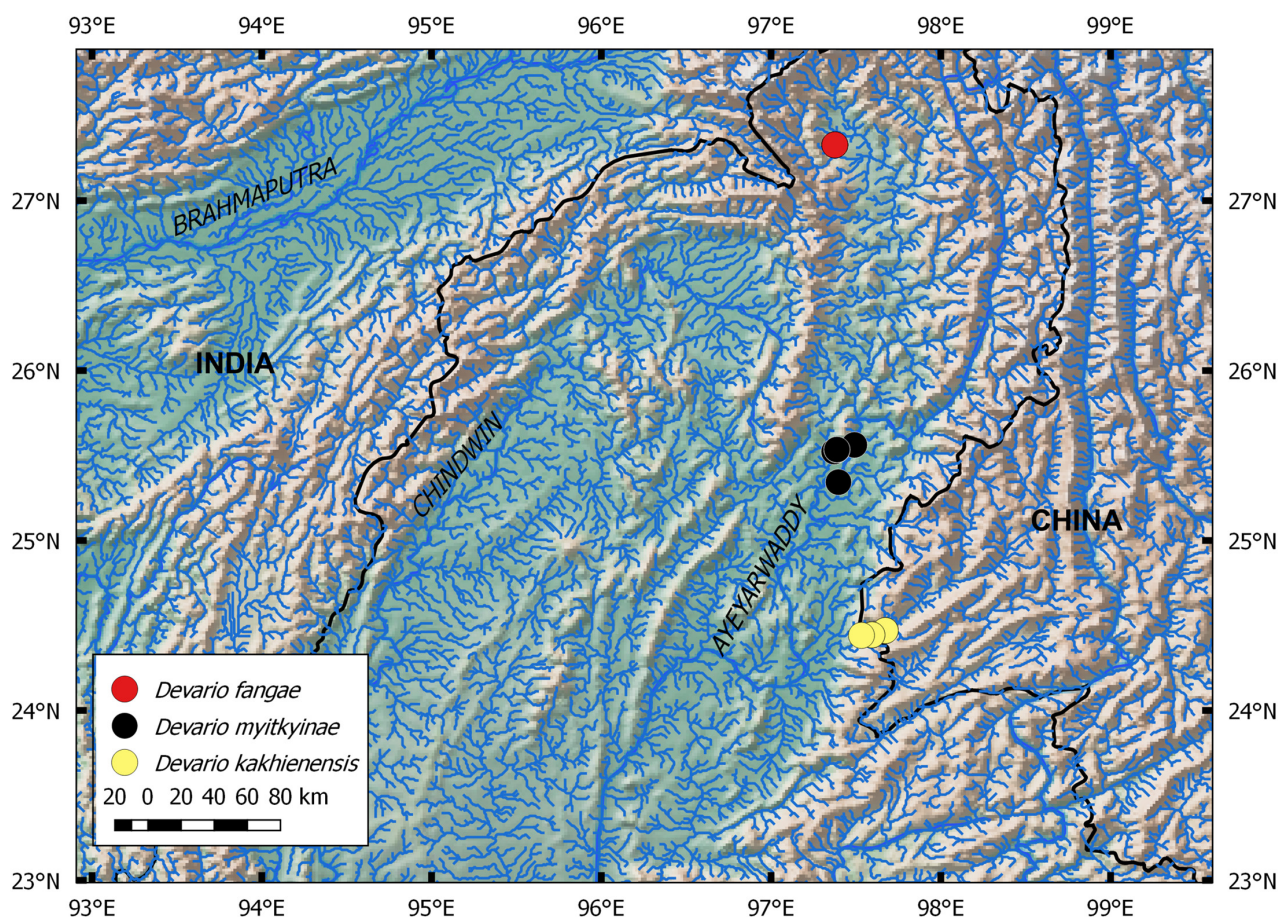


FIGURE 4. Map of Myanmar showing collection sites of *Devario fangae*, *D. kakhienensis* and *D. myitkyinae*.

**Diagnosis.** *Devario myitkyinae* is similar to *D. browni* and *D. kakhienensis* in having dark horizontal stripes on side equal in width, narrow, irregular and to some extent curved away from horizontal extension. It differs from *D. browni* and *D. kakhienensis*, and also *D. fangae* in absence of anterior widening of the P stripe. *Devario myitkyinae* is further similar to species of *Devario* characterized by three dark stripes (P, P+1, P-1) along the side, but differs from these in having all three stripes irregular and of about equal width vs. P stripe wide and P+1 and P-1 stripes much narrower as in *D. aequipinnatus*, *D. acrostomus*, *D. deruptotalea*, *D. fangfangae*, *D. fraseri*, and *D. gibber*. In *D. regina* and *D. malabaricus* the P stripe is split anteriorly by a short light interstripe.

The status and diagnoses of *D. assamensis* from the Brahmaputra River in southern Assam, and *D. ostreographus*, without locality, are uncertain, but both were described as extremely deep-bodied, and thus unlikely to be confused with *D. myitkyinae*. From *D. devario*, *D. myitkyinae* can be distinguished by presence vs. absence of infraorbital process and rostral barbel; distinct vs. very shallow danionine notch;  $9\frac{1}{2}$ – $11\frac{1}{2}$  vs.  $15\frac{1}{2}$ – $17\frac{1}{2}$  dorsal-fin rays; 30–33 vs. 42–47 lateral line scales; 12 vs. 16 circumpeduncular scales; presence of distinct dark stripes P, P+1, P+2, P-1 P-2 on side vs. indistinct P stripe, middle and posterior side dark with scattered light spots.

From other species of striped *Devario* in Myanmar, *D. myitkyinae* is distinguished from nominal species *D. affinis*, *D. annandalei*, *D. strigillifer*, *D. spinosus* and *D. yuensis* by fewer scales in the lateral line (30–33, vs. 35–53), fewer circumpeduncular scales (12 vs. 14–20), and absence of a supraorbital process; from *D. xyrops* in having a continuous P stripe vs. P stripe separated into two blotches; and from *D. fangae* by the colour pattern, characterized by up to five irregular stripes, vs. three dark, straight horizontal stripes on the middle of the side, branched dorsal-fin rays vs.  $11\frac{1}{2}$ – $13\frac{1}{2}$ , exceptionally,  $10\frac{1}{2}$ , vs.  $9\frac{1}{2}$ – $10\frac{1}{2}$ , exceptionally  $11\frac{1}{2}$ , and branched anal-fin rays  $12\frac{1}{2}$ – $13\frac{1}{2}$ , exceptionally  $11\frac{1}{2}$  or  $14\frac{1}{2}$ , vs.  $9\frac{1}{2}$ – $11\frac{1}{2}$ .

*Devario myitkyinae* can be distinguished from all remaining species of *Devario* also by the striped colour pattern, vs. a pattern of large blotches as in *D. kysonensis*, *D. pathirana*, or smaller blotches as in *D. quangbinhensis*; a very narrow posterior P stripe as in *D. chrysoaeniatus*, *D. laoensis*, *D. leptos*, *D. micronema*, *D.*

*neilgherriensis*; vertical bars as in barred devarios *D. apogon*, *D. apopyris*, *D. auropurpureus*, *D. interruptus*, *jayarami*, *D. maetaengensis*, *D. salmonatus*, and *D. shanensis*; uniform, with or without a thin dark stripe posteriorly on the side as in *D. acuticephala* and *D. sondhii*; P stripe separated into two blotches as in *D. anomalus*; or wide P stripe posteriorly on side, but no other dark stripes as in *D. naganensis*. From barred devarios, *D. fraseri*, and *D. malabaricus*, *D. myitkinae* can be distinguished further by presence vs. absence of infraorbital process.

**Description.** Based on NRM specimens. Largest female 66.3 mm SL, largest male 68.7 mm SL. Measurements are summarized in Table 3. Counts from holotype are marked with an asterisk.

**TABLE 3.** Morphometry of *Devario myitkinae* (NRM 36362–36364, 37290, 40917). Measurements are in percent of standard length (SL), except for standard length, in mm. Correlation (Pearson's  $r$ ), and linear regression parameters ( $y=a+b*SL$ ) were calculated from original measurements in mm, and are given only where  $r \geq 0.9$ ; SD = standard deviation. HT = holotype.

	HT	n	min	max	mean	SD	a	b	r
SL (mm)	65.8	19	42.8	68.7	58.1	7.7			
Body depth	33.7	19	31.8	37.9	34.7	1.9	2.836	0.297	0.95
Head length	25.2	19	23.7	27.1	25.4	1.0	3.029	0.201	0.99
Snout length	7.3	19	6.7	8.5	7.4	0.4	0.548	0.064	0.98
Head depth	19.8	19	14.4	21.4	18.6	1.5	1.851	0.154	0.96
Head width	13.2	19	12.4	14.6	13.3	0.7	1.243	0.112	0.99
Upper jaw length	9.1	19	8.4	11.5	9.8	0.8	2.151	0.060	0.96
Lower jaw length	12.2	19	11.0	14.3	12.5	1.0	3.083	0.071	0.97
Orbit diameter	8.4	19	7.8	10.2	8.8	0.6	2.160	0.050	0.95
Interorbital width	11.7	19	10.5	12.3	11.3	0.5	1.395	0.089	0.98
Caudal-peduncle length	17.6	19	14.8	18.8	16.8	1.1	-0.930	0.184	0.93
Caudal-peduncle depth	14.0	19	12.1	14.1	13.1	0.6	-0.461	0.139	0.99
Dorsal-fin base length	22.3	19	19.1	22.3	20.8	0.9	-0.194	0.211	0.91
Aanal-fin base length	20.7	19	18.2	22.9	20.1	1.1	-0.295	0.206	0.96
Predorsal length	57.6	19	57.6	62.5	59.7	1.1	2.368	0.555	0.99
Preanal length	67.3	19	66.1	71.8	68.8	1.6	3.926	0.619	0.99
Prepelvic length	47.3	19	46.0	52.7	49.6	1.8	4.305	0.421	0.99
Pectoral-fin length	21.7	19	20.1	25.2	23.0	1.6	5.430	0.135	0.95
Pelvic-fin length	16.1	19	14.0	16.8	15.7	0.7	1.960	0.122	0.95
Rostral barbel length	4.7	19	3.5	5.6	4.7	0.5			
Maxillary barbel length	1.8	19	1.2	2.3	1.7	0.3			

Body laterally compressed, moderately elongate. In specimens over 55 mm SL, females slightly deeper (33.2–37.9% SL, mean 35.6% SL; N=9, 56.7–66.3 mm SL) than males (31.8–34.5% SL, mean 33.0%; N= 5, 57.4–68.7 mm SL). Predorsal contour straight or slightly curved, ascending, with slight indentation marking position of lateralis canal of temporal commissure; sloping posteriorly from dorsal-fin insertion. Prepelvic contour curved, more so in females; chest slightly compressed below pectoral fin, but not keeled. Snout short, rounded in dorsal aspect, subtriangular in lateral aspect, about as long as or slightly shorter than eye diameter in lateral aspect. Infraorbital process laminar, digitiform, with rounded tip, or broader than high, with truncate or slightly convex distal margin. Danionine notch caudally margined by blunt anteromedial projecting laminar dentary process. Skin cover absent from distal part of infraorbital process, dentary process, and anterior margin of supraorbital. Mouth terminal, obliquely directed upwards. Small knob at dentary symphysis, fitting in depression in upper jaw. Maxilla not reaching to below anterior margin of orbit. Jaws equal anteriorly; lower jaw ending anteriorly at horizontal through middle of eye, posteriorly at vertical through middle of eye. Lower jaw with large conical tubercles in band of 2–3 rows mediodorsally, band tapering to single row posteriorly, tubercles absent or small symphysially; another 1–2 rows of tubercles along medial margin of dentary. Males with strong, densely arranged sharp-tipped conical

tubercles in narrow bands on anterior six branched rays of pectoral fin. Rostral barbel short, reaching base of maxillary barbel or shorter; maxillary barbel much shorter, less than half the length of rostral barbel, not reaching below middle of orbit.

Lateral line complete, along 30 (3), 31\* (5), 32 (8), 33 (3) scales, and two scales on caudal-fin base; comprising one tubed scale followed by a canal running steeply caudoventrad under about five unperforated scales to slightly posterior to pectoral-fin base, where curved caudad and represented by perforated scales running in a curve parallel to the ventral body outline and ending low on caudal peduncle and caudal-fin base; continued by two scales on caudal-fin base. Median predorsal scales 13 (1), 14\* (15), 15 (3). Lateral scale rows passing between dorsal and pelvic fins  $\frac{1}{2}7+1+2\frac{1}{2}^*$  (19). Circumpeduncular scale rows 12\* (19). A row of scales along anal-fin base. About  $\frac{1}{4}$  of caudal-fin length scaled basally.



**FIGURE 5.** *Devario myitkyinae*. (a) holotype, NRM 69501, male, 65.8 mm SL; (b) paratype, NRM 36363, male, 61.8 mm SL; (c) paratype, NRM 36364, female, 56.7 mm SL. All from Myanmar: Kachin State, Ayeyarwaddy River drainage, Hpa Lap Chaung near Myitkyina.

Dorsal-fin rays iii.10½ (1), iii.11½\* (9), iii.12½ (8), iii.13½ (1). Anal-fin rays iii.11½ (1), iii-12½\* (8), iii.13½ (9), iii.14½ (1). Pectoral-fin rays i.10 (2), i.11\* (14), i.12 (3). Pelvic-fin rays i.7\* (19). Dorsal fin inserted at highest point of dorsum, slightly posterior to middle of body; distal margin straight, rays increasing in length to first branched ray, posterior rays gradually slightly shorter, last ray about 4/5 length of first branched ray, not reaching to middle of caudal peduncle. Anal fin inserted below anterior rays of dorsal fin; distal margin about straight, except last unbranched and first branched rays forming short extended tip; rays increasing in length to first branched ray, posterior rays gradually slightly shorter, last ray almost as long as first branched ray, reaching to middle of caudal peduncle. Pectoral-fin insertion at about vertical through posterior margin of osseous opercle; pectoral fin not extending to pelvic-fin insertion. Pectoral-fin axial lobe well developed. Pelvic fin inserted slightly anterior to midbody, not reaching to anal-fin origin. Pelvic axillary scale present. Caudal fin forked, lobes of about equal length.

Vertebrae 17+17=34 (6), 17+18= 35 (4), 18+16=34 (1), 18+17=35 (1). Pharyngeal teeth 1,3,5/5,3,2 (NRM 40917, 46.1 mm SL).

**Colouration in preservative.** Dorsum pale brown, sides pale yellowish white, abdomen white. Opercle pale brownish. Sides of head sparsely pigmented. Narrow dark brown middorsal stripe from occiput to end of caudal peduncle. Dark brown or black cleithral spot covering part of first lateral-line scale and scale above. Horizontal stripes brown. P stripe about one scale or less wide slightly increasing in width or equal in width from caudal to rostral end; extending from caudal fin-base rostrad, straight or irregular, to about vertical from pelvic fin insertion or tip of adpressed pectoral fin; anteriorly broken up, anastomosing with other stripes or continued as several short branches; posteriorly narrower than or equal in width to interstripe I. P+1 stripe slightly narrower or equal in width to P stripe, paralleling P stripe and equally long, narrower caudally, ending diffusely posteriorly on caudal peduncle. P+2 stripe short, not extending posterior to vertical from end of dorsal-fin base, narrower than P stripe; narrower than or equal in width to interstripe I+2. P-1 stripe parallel with P stripe, straight or irregular, length and width equal to P stripe or narrower; narrower than interstripe I. P-2 stripe indistinct, short, on abdominal side not extending past anal fin base; narrower than or equal in width to interstripe I-1. P, P+1, P+2, P-1, and P-2 and interstripes all ending anteriorly at same vertical from pelvic fin insertion or tip of adpressed pectoral fin; colouration anterior to stripes consisting of scattered blotches and/or several narrow irregular short vertical bars. Diffuse pigmentation lighter than stripes and darker than interstripes. Dorsal and anal fins lightly pigmented, markings indistinct or absent; dorsal fin with white on tips of anterior rays; anterior caudal fin basally pale grey along middle rays, most of fin hyaline. Pectoral and pelvic fins hyaline. Young specimens less than 50 mm SL similar to adults but horizontal stripes regular, without anastomoses or disruptions.

**Geographical distribution.** Known only from localities close to Myitkyina on the upper Ayeyarwaddy River in Myanmar (Fig 4). The 1997 other localities were small streams, up to 10 m wide, in bamboo forest with 60–80% shadow. The water was swift-flowing, clear with brown tint. The bottom consisted of mud with small stones and/or leaf litter. Associated species were identified as *Danio kyathit*, *Oreochthys* sp., *Pethia didi*, *P. erythromycter*, *P. macrogramma*, *P. thelys*, *Puntius chola*, *Puntius sophore*, *Rasbora ornata*, *R. rasbora*, *Tor* sp. (Cyprinidae), *Acanthocobitis* sp. (Nemacheilidae), *Badis kyar* (Badidae), *Macrognathus obscurus* (Mastacembelidae), *Leiodon cutcutia* (Tetraodontidae), *Mystus pulcher* (Bagridae), *Notopterus notopterus* (Notopteridae), *Parambassis robertsi* (Ambassidae), and *Xenentodon cancila* (Belonidae). The Naung San Chaung locality was a large stagnant, shallow portion in a levee depression on the bank of the Ayeyarwaddy, with muddy bottom and surrounded by grass fields. Associated species were identified as *Badis corycaeus* (Badidae), *Parambassis robertsi* (Ambassidae), and *Acanthocobitis mandalayensis* (Nemacheilidae).

Prashad & Mukerji (1929) reported a specimen of *D. aequipinnatus* from near Kamaing, which may be *D. myitkyinae*.

**Etymology.** Named for the type locality area, where this species appears to be the only representative of the genus; a noun in the genitive case.

## Discussion

The colour pattern of *D. fangae*, with broad dark stripes and narrow light interstripes, and P stripe widened anteriorly on side, is diagnostic but similar to that of *D. browni*. The specimens with closed interstripe loop (Fig.

2b), resemble juveniles of *D. browni*, with essentially the same colour pattern (Fang 2000b: fig. 3a). The expansion of the P stripe anteriorly on the side is characteristic of both species and, less pronounced, in *D. kakhienensis*. In adults of *D. browni*, however, the horizontal stripes are irregular and a light interstripe forms anteriorly in the P stripe, and in *D. kakhienensis* the horizontal stripes are relatively narrow. The sexual dimorphism is to some extent shared with *D. kakhienensis* in the Taping-Daying River drainage near Bhamo (fig. 4) in which the P stripe is also somewhat widened anteriorly on the side (Fang, 1997a: figs. 3–4). In adult male *D. kakhienensis* the P, P+1 and P-1 stripes are very narrow, parallel and extending forward almost to the head; in females, the stripes become irregular anteriorly (Fang, 1997a: fig. 4) or are replaced by small spots; spots may also be present anterior to the horizontal stripes in some males of both *D. browni* and *D. kakhienensis* (Fang, 1997a: fig. 5).

Sexual dimorphism in body depth is prominent in the type series of *D. fangae*, and reflected in different body depth, prepelvic and preanal distances (Figs. 1, 3, Table 2), suggesting that the sample is from a sexually active population. In the type series of *D. myitkyinae*, large females are deeper than large males, but too few large males are present in the sample to establish statistical significance, and other measurements do not show sexual dimorphism. A deeper body, probably reflecting larger gonads in females, was reported from *D. kakhienensis* by Fang (1997a), and this sexual dimorphism seems to be common in *Devario* (pers. obs.), as well as in *Danio* (e.g., Fang & Kottelat, 2000), but wild samples of *Devario* do not always show this dimorphism, and possibly it varies with reproductive cycles. There are, however, no studies of reproductive biology in wild danionins. Sexual dimorphism in body proportions needs to be considered in morphometric comparisons of species of *Devario*.

Twelve species of fishes have been described from Putao: *Psilorhynchus brachyrhynchus* Conway & Britz 2010, *Channa burmanica* (Chaudhuri, 1919), *Danio flagrans* Kullander, 2012, *Schistura malaisei* Kottelat, 1990, *Amblyceps murraystuarti* Chaudhuri, 1919, *Batasio procerus* Ng, 2008, *Badis pyema* Kullander & Britz, 2002, *Semiplotus cirrhosus* Chaudhuri, 1919 and *Pethia tiantian* (Kullander & Fang, 2005) are not known from elsewhere. *Glyptosternum chaudhurii* Hora, 1923 was synonymized with *Exostoma vinciguerrae* Regan, 1905 by Ng & Vidhayanon (2014). *Schistura sikmaiensis* (Hora, 1921) is reported from a wider area (Kottelat, 2012). *Nemacheilus putaoensis* Rendahl, 1948, is a synonym of *Schistura sikmaiensis* (Kottelat, 2012).

The Hpa Lap stream is type locality of four species of fishes in addition to *Devario myitkyinae*, viz. *Lepidocephalichthys alkaia* Havird & Page, 2010, *Pethia didi* Kullander & Fang, 2005, *Danio kyathit* Fang, 1998, and *Macrognaathus obscurus* Britz, 2010. Except for the two last-mentioned, these species have wider distribution, and are at least present also in Lake Indawgyi (M. Kottelat, pers. comm., 2016).

The two CUVM specimens of *D. myitkyinae* without locality data were probably collected near Myitkyina between 1942 and 1944 or possibly later. The collector, Robert W. Harrington, participated in the construction 1942–1945 of the Ledo Road from Assam to Yunnan, passing Myitkyina. After his military service Harrington held a position as professor at Trinity College in Princeton, where he maintained an aquarium facility to study fish behavior (Anonymous, 1952). The CUVM specimens, a male, 78.3 mm SL (largest specimen known of *D. myitkyinae*) and female, 48.8 mm SL, are in very good condition except for fading and swelling caused by the preservation, and may very well have been raised in an aquarium.

*Devario fangae* and *D. myitkyinae* differ considerably in colour pattern. Morphometric and meristic data overlap, but are also overlapping with other *Devario* species; the only exception being slightly more branched anal-fin rays in *D. myitkyinae* (11½–14½ vs. 9½–11½ in *D. fangae*).

Along with *D. xyrops*, *D. fangae* and *D. myitkyinae* stand out among striped *Devario* with distinctive colour patterns, and differ considerably from the species occurring in the Ayeyarwaddy and Sittaung drainages south of Myitkyina. These nominal species, *D. annandalei*, *D. spinosus*, *D. affinis*, and *D. strigillifer*, all have an elevated count of scales in the lateral line (35–53) and a diffuse colour pattern with scattered small light spots anteriorly on the side and narrow P stripe. They also present a short, compressed projection on the supraorbital bone, which is not recorded from any other cyprinid fish, but was noted first by Day (1870) in the description of *D. spinosus*, and is here recorded also from *D. yuensis* in the Chindwin River drainage.

*Devario deruptotalea* was described from the Yu River drainage in India, a tributary to the Chindwin River (Ramananda & Vishwanath, 2014), and is here reported for the first time from Myanmar. *Devario yuensis* was also, as implied by the name, described from the Yu River (Kumar & Singh, 1998), based on market fish from Moreh in India (twin town of Tamu in Myanmar), and is here recorded for the first time from Myanmar. For some reason *D. yuensis* is not mentioned in the original description of *D. deruptotalea*. According to the original description of *D. yuensis* it is a deep-bodied species with 37–40 lateral line scales, and 15–16 circumpeduncular scales (Kumar &

Singh, 1998), which would make it similar to or the same as *D. strigillifer* or *D. annandalei*, and similar to a specimen (NRM 69378) from the Htansin Chaung in Myanmar, near Tamu, on the border with India, with 38 lateral line scales, 14 circumpeduncular scales and a supraorbital process, which is here identified as *D. yuensis*. *Devario deruptotalea* on the other hand, is an elongate species with 32 lateral line scales and 12 circumpeduncular scales (Ramananda & Vishwanath, 2014; pers. obs.). Both species are present in the Htansin Chaung.

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