

Devario pullatus and *D. subviridis*, two new species of minnows from Laos (Teleostei: Cyprinidae)

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Devario pullatus, new species, is described from the Nam Ngiep watershed, Mekong drainage. It is distinguished from all other species of the genus by its unique colour pattern in adults, consisting only in a dark brown stripe P from gill opening to end of caudal peduncle, widest on middle of flank, narrowest at beginning of caudal peduncle, widening again until caudal-fin base. *Devario subviridis*, new species, is described from the edge of Nakai Plateau, in Xe Bangfai watershed, Mekong drainage. It is distinguished from all other species of the genus by its unique colour pattern in adults, consisting in a dark brown stripe P from gill opening to end of caudal peduncle, continued on median caudal-fin rays, wider and less contrasted in anterior part of flank, and, within it an irregular row of short, narrow, vermiculated yellowish lines. *Devario* cf. *quangbinhensis* is reported from Laos for the first time.

Introduction

Cyprinid fishes of the genus *Devario* typically occur in moderate to swift flowing water of small streams with clear and cool water. The genus is known throughout South and mainland Southeast Asia. The genus includes about 38 named species (Conway et al., 2009; Fang, 1997a–b, 2003; Fang & Kottelat, 1999; Kottelat, 2000, 2001, 2013, 2020; Fang & Kullander, 2009; Kullander, 2017; Kullander & Fang, 2009; Kullander & Norén, 2016; Ramananda & Vishwanath, 2014) and has its greatest diversity in Myanmar, northern Thailand and Laos. A number of unnamed species are known and await description. The purpose of the present article is to describe two new species from Laos with unique colour pattern.

Material and methods

Measurements and counts follow Kottelat (2001) and Kottelat & Freyhof (2007). The last 2 branched dorsal and anal-fin rays articulating on a single pterygiophore are noted as “1 ½”. Lateral-line scale counts are given as scales on body + scales on caudal-fin base. In some species, the lateral line starts with a tubed scale followed by a few unpored scales in the steep anterior part until behind pectoral-fin base, from where scales are pored again; the unpored scales are included in the count (scales are not regularly organised in the steep part, leading to possible inaccuracy of 1 or 2 unpored scales). Frequency of meristic values is indicated in parentheses, if more than one value is observed; asterisks indicate the condition for the

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Literature cited

- Conway, K. W., R. L. Mayden & K. L. Tang. 2009. *Devario anomalus*, a new species of freshwater fish from Bangladesh (Ostariophysi: Cyprinidae). *Zootaxa*, 2136: 49–58.
- Fang, F. 1997a. Redescription of *Danio kakhienensis*, a poorly known cyprinid fish from the Irrawaddy basin. *Ichthyological Exploration of Freshwaters*, 7: 289–298.
- Fang, F. 1997b. *Danio maetaengensis*, a new species of cyprinid fish from northern Thailand. *Ichthyological Exploration of Freshwaters*, 8: 41–48.
- Fang, F. 2003. Phylogenetic analysis of the Asian cyprinid genus *Danio* (Teleostei, Cyprinidae). *Copeia*, 2003: 714–728.
- Fang, F. & M. Kottelat. 1999. *Danio* species from northern Laos, with descriptions of three new species (Teleostei: Cyprinidae). *Ichthyological Exploration of Freshwaters*, 10: 281–295.
- Fang, F. & S. O. Kullander. 2009. *Devario xyrops*, a new species of danionine fish from south-western Myanmar (Teleostei: Cyprinidae). *Zootaxa*, 2164: 33–40.
- Howes, G. J. 1979. Notes on the anatomy of *Macrochirichthys macrochirus* (Valenciennes), 1844, with comments on the Cultrinae (Pisces, Cyprinidae). *Bulletin of the British Museum (Natural History), Zoology*, 36: 147–200.
- Kottelat, M. 1982. Notes d'ichthyologie asiatique. I. Les genres *Parabarilius* et *Daniops*. II. Statut de *Ctenogobius cephalopardus*. III. Distribution d'*Indostomus paradoxus*. IV. Statut de *Puntius roloffii*. *Bulletin du Muséum National d'Histoire Naturelle, Paris, Série 4, Section A*, 4 (3–4): 523–529.
- Kottelat, M. 1998. Fishes of the Nam Theun and Xe Bangfai basins, Laos, with diagnoses of twenty-two new species (Teleostei: Cyprinidae, Balitoridae, Cobitidae, Coiidae and Odontobutidae). *Ichthyological Exploration of Freshwaters*, 9: 1–128.
- Kottelat, M. 2000. Diagnoses of a new genus and 64 new species of fishes from Laos (Teleostei: Cyprinidae, Balitoridae, Bagridae, Syngnathidae, Chaudhuriidae and Tetraodontidae). *Journal of South Asian Natural History*, 5: 37–82.
- Kottelat, M. 2001. Fishes of Laos. *Wildlife Heritage Trust, Colombo*, 198 pp.
- Kottelat, M. 2013. The fishes of inland waters of South-east Asia: a catalogue and core bibliography of the fishes known to occur in freshwaters, mangroves and estuaries. *Raffles Bulletin of Zoology, Supplement 27*: 1–663.
- Kottelat, M. 2016. The fishes of the Nam Theun and Xe Bangfai drainages, Laos. *Hydroécologie Appliquée*, 19: 271–320.
- Kottelat, M. 2017a. Three new species of loaches of the genus *Schistura* from the Nam Ngiep drainage, central Laos (Teleostei: Nemacheilidae). *Raffles Bulletin of Zoology*, 65: 691–706.
- Kottelat, M. 2017b. *Schistura epixenos*, a new species of loach from the Nakai Plateau, Laos (Teleostei: Nemacheilidae). *Zootaxa*, 4300: 44–54.
- Kottelat, M. 2020. Redescription of *Devario kyonensis* and first record from Laos (Teleostei: Cyprinidae). *Raffles Bulletin of Zoology*, 68: 556–561.
- Kottelat, M. & J. Freyhof. 2007. Handbook of European freshwater fishes. Kottelat, Cornol & Freyhof, Berlin, xiv + 646 pp.
- Kottelat, M. & H. Steiner. 2011. *Bangana musaei*, a new cave fish from central Laos (Teleostei: Cyprinidae). *Ichthyological Exploration of Freshwaters*, 21 (2011): 313–322.
- Kullander, S. O. 2015. Taxonomy of chain *Danio*, an Indo-Myanmar species assemblage, with descriptions of four new species (Teleostei: Cyprinidae). *Ichthyological Exploration of Freshwaters*, 25: 357–380.
- Kullander, S. O. 2017. *Devario fangae* and *Devario myitkyinae*, two new species of danionin cyprinids from northern Myanmar (Teleostei: Cyprinidae: Danioninae). *Zootaxa*, 4227: 407–421.
- Kullander, S. O. & F. Fang. 2009. *Danio aesculapii*, a new species of danio from south-western Myanmar (Teleostei: Cyprinidae). *Zootaxa*, 2164: 41–48.
- Kullander, S. O. & M. Norén. 2016. *Danio htamanthinus* (Teleostei: Cyprinidae), a new species of miniature cyprinid fish from the Chindwin River in Myanmar. *Zootaxa*, 4178: 535–546.
- Ngo, S. V. 2003. [Two new fish species discovered in Phong Nha – Ke Bang (Quang Binh Province): *Danio trangi* and *Cobitis ylengensis*]. *Tap Chi Thuy San [Fisheries Review]*, 2003: 16–20 [In Vietnamese].
- Nguyen, T. T., X. K. Nguyen & V. T. Le. 1999. [A new species of the genus *Chela* (Haminton, 1822)]. Pp. 16–22, backcover, in: T. T. Nguyen (ed.), [Selected paper of Seminar on North Truongson Biodiversity (the second) 40 year celebration of Vinh University]. Nha Xuat Ban Dai Hoc Quoc Gia, Hanoi [in Vietnamese, English summary].
- Pethiyagoda, R., M. Kottelat, A. Silva, K. Maduwage & M. Meegaskumbura. 2008. A review of the genus *Laubuca* in Sri Lanka, with description of three new species (Teleostei: Cyprinidae). *Ichthyological Exploration of Freshwaters*, 19: 7–26.
- Ramananda, Y. & W. Vishwanath. 2014. *Devario deruptotalea*, a new species of cyprinid fish from Manipur, India (Teleostei: Cyprinidae). *Zootaxa*, 3827: 78–86.
- Roberts, T. R. 1986. *Danionella translucida*, a new genus and species of cyprinid fish from Burma, one of the smallest living vertebrates. *Environmental Biology of Fishes*, 16: 231–241.
- Stuart, B. L., S. Phimmachak, N. Sivongxay & W. G. Robichaud. 2010. A new species in the *Tylototriton asperrimus* group (Caudata: Salamandridae) from central Laos. *Zootaxa*, 2650: 19–32.

Received 13 March 2020
 Revised 2 May 2020
 Accepted 19 July 2020

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