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## ***Garra waensis*, a new cyprinid fish (Actinopterygii: Cypriniformes) from the Nan River basin of the Chao Phraya River system, northern Thailand**

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### **Abstract**

A new cyprinid fish, *Garra waensis*, is described from the Wa River, a tributary of the Nan River of the Chao Phraya River system in northern Thailand. The species is distinguishable from its congeners by the combination of the following characters: the absence of barbels; 7 branched dorsal fin rays; 31–37 lateral-line scales; 10–12 circumpeduncular scales; a small and broad head (head length [HL] 22.7–26.1% in standard length, head depth 56.1–64.9% HL, head width 74.0–85.0 % HL); a weakly developed proboscis in front of nostrils; the presence of reddish-orange spots (white or dull yellowish white in preserved specimens) on the side of the body; and a dark mid-lateral stripe running from the upper edge of the gill opening to the caudal peduncle and expanding into a large anteriorly-pointed triangular blotch at the end of the body (in preserved condition). A vomero-palatine organ of the species is also described in detail for the first time for Asian species of *Garra*. The genus *Placocheilus* is treated as a junior synonym of *Garra*.

**Key words:** Chao Phraya River, Cyprinidae, *Garra*, Labeonini, Nan River, Nan Province, new species; *Placocheilus*, Thailand, vomero-palatine organ, Wa River

### **Introduction**

Fishes of the cyprinid genus *Garra* Hamilton, 1822 are widely distributed from Africa, the Middle East, the Arabian Peninsula, and South and Southeast Asia through southern China (Banister 1987; Talwar & Jhingran 1991; Zhang *et al.* 2000; Kottelat 2001; Kullander & Fang 2004; Stiassny & Getahun 2007). The genus is characterized by an elongate and subcylindrical body, a crenulated rostral fold, and the lower lip expanded posteriorly to form either an ovoid or circular callous pad or suction disc with a crescentic anteromedian fold (Talwar & Jhingran 1991; Stiassny & Getahun 2007; Zhang *et al.* 2002). Many species of *Garra* live in the swiftly-flowing waters of mountain streams and rivers, where they commonly adhere to the surface of rocks on the bottom by the oral suction disc and extended paired fins (Li *et al.* 2008).

A morphologically closely-resembling genus *Placocheilus* was erected by Wu (in Wu *et al.* 1977) and has been treated as valid mainly by Chinese researchers (e.g., Chu & Cui 1989; Zhu 1995; Zhang *et al.* 2000, 2002; Zhang 2005a; Chen *et al.* 2006; Chen *et al.* 2012) while others (Kottelat 2001; Zhou *et al.* 2005; Li *et al.* 2008) have treated it as a junior synonym of *Garra*. Recently, Kottelat (2013) tentatively recognized *Placocheilus* as valid in his catalog of inland fishes of Southeast Asia. According to Zhang *et al.* (2002), Zhang (2005a) and Chen *et al.* (2012), *Placocheilus* can be distinguished from *Garra* by 1) anteromedian fold of the mental disc transversely narrow (vs. wider in *Garra*); 2) two rows of pharyngeal teeth (vs. 3 rows in *Garra*); 3) the third neural arch with a ventrolateral process (vs. without ventrolateral process in *Garra*); and 4) the pleural rib of the fourth vertebra is shorter than the height of the fourth neural arch plus its spine (vs. longer than the height plus its spine in *Garra*). However, since these characters have never been fully or extensively investigated throughout members of *Garra*, as well as the recent discovery of a species partially sharing diagnostic characters of the both genera listed above, *Placocheilus dulongensis* (see details in Chen *et al.* 2012), we treat *Placocheilus* as a junior synonym of *Garra* for the present.

River, Tungsun Village, Thung Chang District, Nan Province, Thailand (19°27'42"N, 100°52'37"E), A. Lothongkham, 12 May 2004; RLIKU 296, 3 specimens, 44.6–49.5 mm SL, Nan River, Nong Phuk Village, Chiang Klang District, Nan Province, Thailand (19°17'37"N, 100°51'05"E), A. Lothongkham, 8 May 2004; RLIKU 403, 2 specimens, 64.8–70.5 mm SL, Nan River, Don Than Village, Chiang Klang District, Nan Province, Thailand (19°15'30"N, 100°50'38"E), A. Lothongkham, 8 May 2004. *Garra salweenica*: RLIKU 1878, 1 specimen (dissected for observation of VPO), 68.9 mm SL, Mae Sa Nga River at Tambon Pang Mu, Amphoe Muang, Mae Hong Son Province, Thailand (19°21'9.3"N, 97°57'16.7"E), P. Musikasinthorn, V. Virasiri and P. Sreesamran.

Data from the following references were used as sources of *Garra* species possessing barbels in comparison to *G. waensis* (relevant species given in parentheses): Banister, 1987 (*G. dunsirei*, *G. lautior*); Banister & Clarke, 1977 (*G. longipinnis*); Zhang *et al.*, 2000 (*G. orientalis*); Chen *et al.*, 2010 (*G. bisangularis*); Chen *et al.*, 2012 ([as *Placocheilus*] *G. caudofasciata*, *G. dulongensis*, *G. robustus*); Gopi, 2001 (*G. periyarensis*); Habteselassie *et al.*, 2010 (*G. chebera*); Hora, 1921 (*G. abhoyai*, *G. annandalei*, *G. kempfi*, *G. montisalsi*, *G. naganensis*, *G. nasuta* [as *G. nasutus*], *G. rupecula* [as *G. rupeculus*], *G. stenorhynchus*); Jayaram, 1999 (*G. kalakadensis*, *G. litanensis*, *G. manipurensis*, *G. menoni*); Koller, 1926 (*G. rhynchota*); Kosygin & Vishwanath, 1998 (*G. compressus*); Kottelat, 2000 (*G. cyrano*); Kottelat, 2001 (*G. bourreti*, *G. laichowensis*); Krupp, 1983 (*G. barreimiae*, *G. buettikeri*, *G. ghorensis*, *G. mamshuqa*, *G. sahilia*); Krupp & Budd, 2009 (*G. smarti*); Kullander & Fang, 2004 (*G. flavatra*, *G. nigricollis*, *G. poecilura*, *G. propulvinus*, *G. rakhinica*, *G. spilota*, *G. vittatula*); Kurup & Radhakrishnan, 2011 (*G. emarginata*, *G. mlapparaensis*); Lalronunga *et al.*, 2013 (*G. dampensis*); Li *et al.*, 2008 (*G. micropulvinus*, *G. mirofrontis*, *G. qiaojiensis*, *G. salweenica*); Menon, 1964 (*G. gracilis*, *G. gravelyi*, *G. hughi*, *G. lamta*, *G. lissorhynchus*, *G. persica*, *G. phillipsi*, *G. rossica*, *G. rufa*, *G. trewasasai*, *G. variabilis*, *G. waterloti*); Nebeshwar & Vishwanath, 2013 (*G. arunachalensis*, *G. birostris*, *G. gotyla*, *G. quadratirostris*); Nebeshwar *et al.*, 2009 (*G. arupi*); Nebeshwar *et al.*, 2012 (*G. kalpangi*); Nguyen & Ngo, 2001 (*G. bibarbatus*); Prashad, 1919 (*G. kangrae*); Rainboth, 1996 (*G. cambodgiensis*, *G. fasciacauda*, *G. fisheri*, *G. fuliginosa*); Roberts, 1989 (*G. borneensis*); Shaji *et al.*, 1996 (*G. surendranathanii*); Shangningam & Vishwanath, 2012 (*G. namyaensis*); Stiassny & Getahun, 2007 (*G. aethiopica*, *G. allostoma*, *G. blanfordii*, *G. congoensis*, *G. dembecha*, *G. dembeensis*, *G. duobarbis*, *G. ethelwynnae*, *G. geba*, *G. hindii*, *G. ignestii*, *G. lancrenonensis*, *G. makiensis*, *G. ornata*, *G. quadrimaculata*, *G. regressus*, *G. tana*); Talwer & Jhingran, 1991 (*G. bicornuta*, *G. ceylonensis*, *G. mcellelandi*, *G. mullya*, *G. notata*, *G. wanae*); Tamang, 2013 (*G. magnidiscus*); Vishwanath & Kosygin, 2000 (*G. elongata*); Vishwanath & Joyshree, 2005 (*G. nambulica*); Vishwanath & Devi, 2005 (*G. paralissorhynchus*); Zhang 2005b, (*G. bispinosa*); Zhang, 2006 (*G. rotundinasus*); Zhang & Chen, 2002 (*G. tengchongensis*).

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