

First record of *Leptobrachium promustache* from Vietnam

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Abstract. *Leptobrachium promustache* is recorded for the first time outside of China. The new locality record is from Van Ban District, Lao Cai Province, in northwestern Vietnam from between 1300–1400 m. Although not a surprising range extension, it is significant because it suggests that the range of *L. promustache* includes the type locality of the morphologically similar *L. chapaense*. These species may be found sympatrically and *L. promustache* may be found in natural history collections under *L. chapaense*. This is also significant because *L. promustache* extends across the Red River, which is coincident with boundaries of two geomorphological regions and many species ranges.

Keywords. Amphibia, Southeast Asia, China, *L. chapaense*, Red River

Introduction

Leptobrachium promustache (Rao, Wilkinson & Zhang, 2006) was recently described from Mount Dawei, Pingbian County, Yunnan Province, China and is known only from its type locality (Fig. 1). Herein, we report on a new country record for this species from neighbouring Vietnam. We collected vouchers between 4 and 12 September, 2004 from forests above the Nam Tha River, Nam Tha Commune, Van Ban District, Lao Cai Province, Vietnam, near 21° 54.933' N 104° 21.350 E, between 1300-1400 m elevation (AMNH 168661-168665; IEBR A.0908-A.0909; all females except IEBR A.0909). Snout-vent lengths are listed in Table 1.

Temperatures for our three week survey varied from nighttime lows of 19 deg C to daytime highs of 30 deg C. All specimens were found amongst leaf litter on the forest floor. None of the specimens collected were in breeding condition. Although we collected *Leptobrachium* tadpoles in nearby streams, they remain unidentified until our molecular assays can positively match them with adult *Leptobrachium* species.

Leptobrachium promustache is most similar to *L. chapaense* (Bourret, 1937), and the two species are distinguishable primarily by the presence of spines on the upper lip in breeding males of *L. promustache*

(absent in *L. chapaense*) (Rao, Wilkinson & Zhang, 2006). Because none of our specimens were in breeding condition, we initially identified them as *L. chapaense*, even after *L. promustache* was described. Upon studying specimens with a microscope, however, we were able to discern white keratinous spinules on the upper lip of the one adult male specimen (IEBR A.0909). The lone male

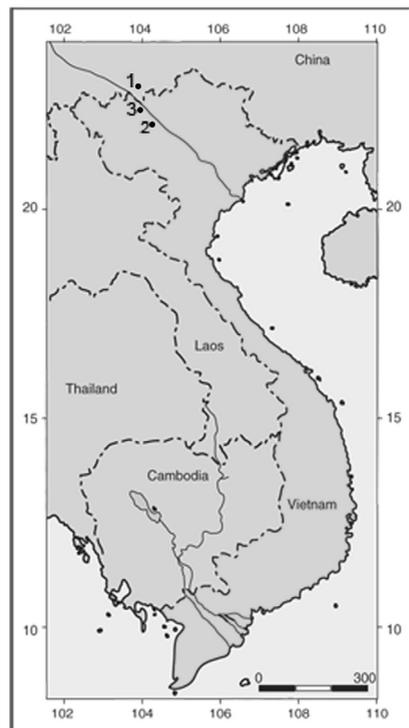


Figure 1. Known localities for *Leptobrachium promustache*: 1) Mount Dawei, Pingbian County, Yunnan Province, China; (type locality); and 2) Van Ban District, Lao Cai Province, Vietnam. (3) Type locality for *L. chapaense* "Chapa" (= Sa Pa), Lao Cai Province, Vietnam.

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Table 1. Snout-vent lengths of Vietnam specimens of *Leptobrachium promustache*.

Catalogue Number	Sex	Snout-vent length (mm)
AMNH 168661	F	59.2
AMNH 168662	F	66.9
AMNH 168663	F	61.0
AMNH 168664	F	55.8
AMNH 168665	F	65.9
IEBR A.0908	F	61.1
IEBR A.0909	M	62.6

and the remainder of the series conformed exactly to the remaining suite of characters that further separates *L. promustache* from *L. chapaense*: i.e., an indistinct tympanum (distinct in *L. chapaense*); absence of light blotching on the chest region (present in *L. chapaense*); inner metacarpal tubercle large, dome shaped, larger than outer metacarpal tubercle (inner metacarpal tubercle, round, same size or slightly larger than outer metacarpal tubercle in *L. chapaense*); femoral gland not distinct (distinct in *L. chapaense*); and webbing on the foot reaching to the second subarticular tubercle of the third toe (more basal position on the third toe in *L.*

chapaense). We did not compare the snouts of the two species (snout more rounded, loreal region more sloping in *L. promustache*; snout more truncated and loreal region less sloping in *L. chapaense*). The upper lips of the females had small white markings that approximated the upper lip spines in males (as in the original description) for all specimens except AMNH 168663, which had no upper lip markings. The markings on the females' upper lip appeared to us to be extensions of the dorsal reticulated network. Our specimens differed from the type series by the presence of a thin white line outside of the upper eyelid black margin (not present in types), and dorsum grey-brown (reddish brown in types) (Fig. 2).

This new locality in northwestern Vietnam lies 130 km southeast and 700 m lower than the type locality. Although this range extension of *L. promustache* is not unexpected, it is significant, as the type locality of *L. chapaense* lies within its range (Fig. 1). We believe that it is possible, even likely, that the two species exist sympatrically, and that specimens of *L. promustache* are already present in natural history collections under the



Figure 2. AMNH 168661, *Leptobrachium promustache* adult female from Van Ban District, Lao Cai Province, Vietnam.

name *L. chapaense*. Delimiting these two species from each other will be made more challenging by the recent evidence that *L. chapaense* is likely a species complex (Zheng, Li & Fu, 2008).

The two known localities of *L. promustache* are also significant because they lie on different mountain ranges: the type locality is on the Dawei Shan (known as the Viet Bac Massif on the Vietnam side of the border), and the new record is from the Hoang Lien Son (known as the Huang Lian Shan on the China side of the border). These mountain ranges straddle the Red River, which lies parallel to a suture zone separating two geomorphological regions (Averyanov *et al.*, 2003; Lepvrier *et al.*, 2004) and serves as a range boundary for many species (e.g., Delacour, Jabouille & Lowe, 1928; Orlov *et al.*, 2001; Bain *et al.*, in press).

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