

***Lanceolaria bogani* (Bivalvia: Unionidae), a new species from Vietnam**

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**KEYWORDS.** Mollusca, Bivalvia, Unionidae, Unioninae, *Lanceolaria*, Vietnam, Huế city, Thừa Thiên - Huế Province, freshwater, new.

**ABSTRACT.** A new species of genus *Lanceolaria* Conrad, 1853 is described from Huế city, Thừa Thiên - Huế Province, Vietnam and compared to three species of this genus: *Lanceolaria fruhstorferi* (Bavay & Dautzenberg, 1900), *Lanceolaria grayana* (Lea, 1834) and *Lanceolaria yueyingae* He & Zhuang, 2013.

**INTRODUCTION**

*Lanceolaria* is a genus of the family Unionidae with many species collected in Vietnam. At the beginning of 2015, a hitherto unknown freshwater bivalve was found. It was not included in the works by Thanh et al. (1980), Lutaenko (2000), Thach (2005, 2007 and 2012). It belongs to *Lanceolaria* and is described as new to science.

**Abbreviations**

IRSNB: Institut royal des Sciences naturelles de Belgique.

MNHN: Muséum national d'Histoire naturelle Paris, France.

NCMNS: North Carolina Museum of Natural Sciences Raleigh, USA.

NNT: Collection N.N.Thach.

LV: Left valve.

RV: Right valve.

SH: Shell height.

SL: Shell length.

SW: Shell width.

**SYSTEMATICS**

Class **BIVALVIA** Linnaeus, 1758

Family **UNIONIDAE** Rafinesque, 1820

Subfamily **UNIONINAE** Rafinesque, 1820

Genus *Lanceolaria* Conrad, 1853

Type species: *Unio grayanus* Lea, 1834 by original designation, Tai Hu Lake, Jiangsu Province, China.

*Lanceolaria bogani* n. sp.

Fig. 1A-I

**Type material.** Holotype 120.8 mm long (Fig. 1A, B, C, F, G) in IRSNB with registration No: IG.

33095/MT.3235). Paratypes: all from type locality, Paratype 1: 123.5 mm long (Fig. 1 D, H, I) in NNT. Paratype 2: 109.0 mm long (Fig. 1E) in MNHN with registration number: IM-2012-1877. Paratype 3: 114.1 mm long (not-illustrated) in NCMNS and Paratype 4: 115.4 mm long (not-illustrated) in NNT.

**Type locality.** Huế city, ThừaThiên- Huế Province, Vietnam.

**Range and habitat.** Bottom of the rivers in Thừa Thiên - Huế Province (such as Hương river, Bồ river, Ô Lâu river). These bivalves live at 2-3m depth. Type specimens were collected at 3m depth.

**Diagnostic.** The new species differs from other species of genus in a series of oblique straight and parallel ribs at outer surface.

**Description.** Shell large (109 to 123.5mm in length) and slightly lenticular in outline. Anterior margin rounded, posterior one tapering. Dorsal margin regularly convex, ventral one usually concave at posterior end. Shell much longer than high with SH about 28% SL (see table 1). Valves slightly inflated with SW about 16.7% SL (table 1) and rather flat at posterior part. Umbones very low, beaks not touching. Lunule narrow and much shorter than escutcheon. Ligament exterior long and shiny. Sculpture consists of numerous straight oblique radial ribs and weak concentric ribs at outer surface. Posterior ridge prominent long and situated very near dorsal margin, posterior slope elongate, narrow and concave. Hinge with robust pseudocardinal teeth and very long lateral teeth. Periostracum yellowish black with dark brown ligament. Interior surface nacreous. Animal yellow with black margin of mantle and is edible.



Specimen No	SH (mm)	SL (mm)	SH/SL	Mean SL/SH	SW (mm)	SW/SL	Mean SW/SH
1	34.2	120.8	0.283	0.280 (28%)	18.3	0.151	0.167 (16.7%)
2	32.3	123.5	0.262		21.8	0.177	
3	30.7	109.0	0.282		17.9	0.164	
4	33.0	114.1	0.289		20.7	0.181	
5	33.0	115.4	0.286		18.8	0.163	

**Table 1.** SH/SL and SW/SL of *Lanceolaria bogani* n. sp.

**Discussion.** *Lanceolaria bogani* n. sp. is close to *L. fruhstorferi* (Bavay & Dautzenberg, 1900) (Fig. 1J) but differs in eight characters that are summarized in Table 2. *Lanceolaria bogani* n. sp. differs mainly from *L. grayana* (Lea, 1834) (Fig. 1L) in less slender shape, larger shell height and not discontinuous radial ribs. It differs mainly from *Lanceolaria yueyingae* He &

Zhuang, 2013 (Fig. 1K and Table 2) in its slenderer shape and more pointed posterior end, longer and oblique radial ribs.

**Etymology.** This new species is named in honor of Dr. Arthur Bogan (USA) for his contribution to the study of freshwater shells in Vietnam.

	<i>Lanceolaria bogani</i> n. sp.	<i>Lanceolaria fruhstorferi</i>	<i>Lanceolaria yueyingae</i>
<b>Shape</b>	Slightly lenticular	Subrectangular	Slightly rectangular
<b>Dorsal margin</b>	Regularly convex	Straight at the middle	Convex at posterior end
<b>Ventral margin</b>	Concave at posterior end	Concave at the middle	Not concave at posterior end
<b>Posterior part</b>	Very pointed, narrow and gradually tapering	Pointed, broad and rapidly tapering	More inflated
<b>Radial ribs</b>	Numerous straight parallel and oblique	Fewer, wavy and at right angle to dorsal margin	Shorter, not oblique, more widely-spaced
<b>Pseudocardinal teeth</b>	Robust	Weaker	Upper pseudocardinal tooth very small at RV
<b>Adductor scar</b>	Deep	Shallow	Deep
<b>Periostracum</b>	Yellowish black	Black	Black

**Table 2.** Comparison of *Lanceolaria bogani* n. sp., *L. fruhstorferi* and *L. yueyingae*

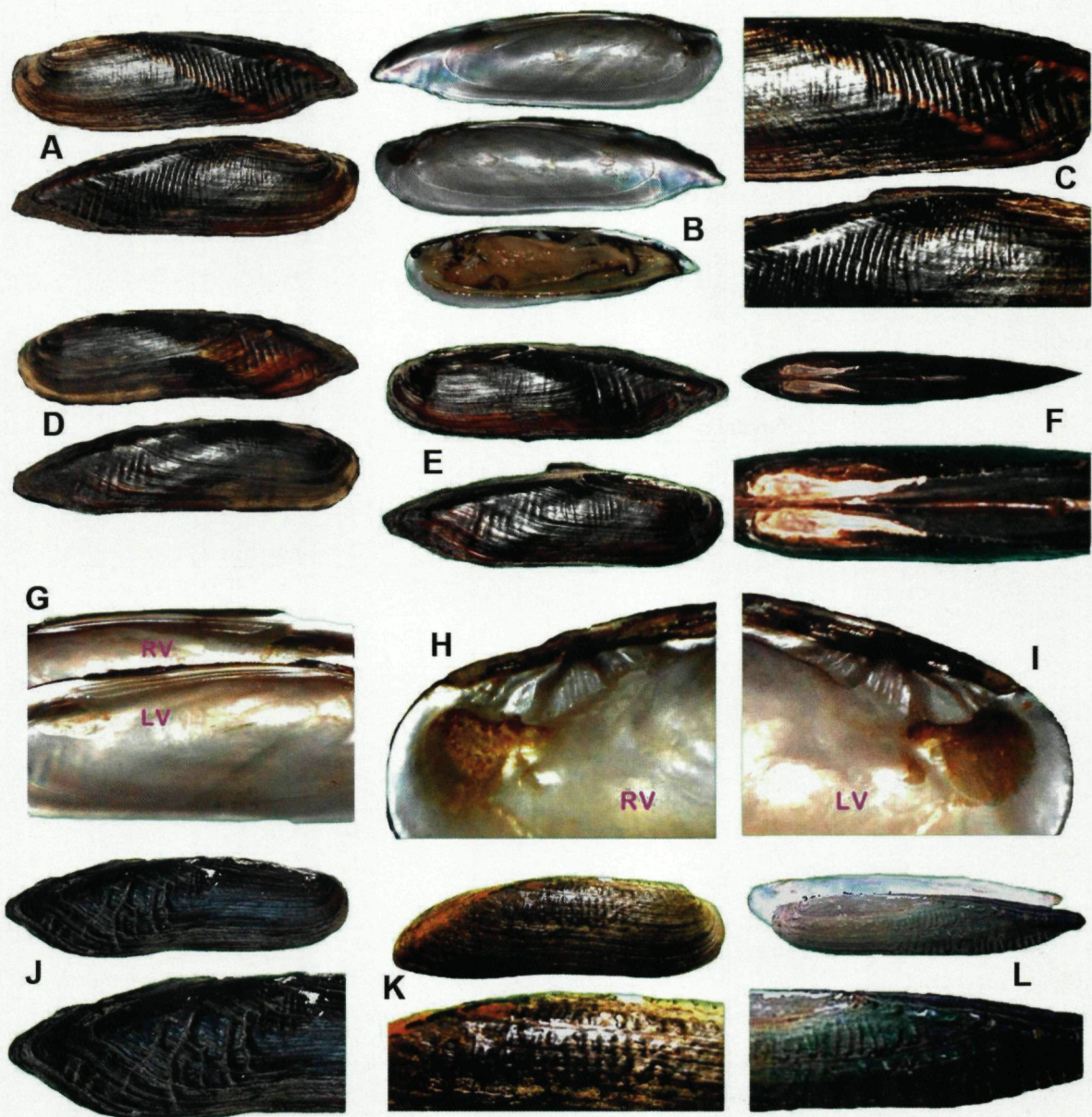
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**Figure 1**

**A-I.** *Lanceolaria bogani* n. sp., Hué, Vietnam

**A.** Holotype 120.8 mm long (exterior surface), IRSNB IG.33095/MT.3235; **B.** Holotype (interior surface and live animal); **C.** Holotype (enlarged ribs); **D.** Paratype 1: 123.5 mm long (exterior surface), NNT; **E.** Paratype 2: 109 mm long (exterior surface), MNHN IM-2012-1877; **F.** Holotype (dorsal margin view and its enlargement); **G.** Holotype (with lateral teeth); **H.** Paratype 1 (Pseudocardinal teeth at RV); **I.** Paratype 1 (Pseudocardinal teeth at LV).

**J.** *Lanceolaria fruhstorferi* (Bavay & Dautzenberg, 1900), syntype MNHN MP 0021 (photo by Dan Graf & Kevin Cummings); **K.** *Lanceolaria yueyingae* He & Zhuang, 2013, holotype, 87.8 mm long (photo by He & Zhuang 2013); **L.** *Lanceolaria grayana* (Lea, 1834), paratype in Senckenberg Museum, Frankfurt, Germany (photo by Dan Graf & Kevin Cummings).