

ON THE TAXONOMY OF FRESHWATER CRABS ALLIED TO THE GENUS *POTAMON* (POTAMIDAE) IN VIETNAM

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ABSTRACT: Since 2002, 4 new genera of freshwater crabs allied to the genus *Potamon* sensu lato in Vietnam were established, including: *Vietopotamon* Dang et Ho, 2002; *Villopotamon* Dang et Ho, 2003; *Donopotamon* Dang et Ho, 2005 and *Dalatomon* Dang et Ho, 2007. Almost of the species of these new genera were mainly found in the mountainous area of south-central Vietnam. The authors comment upon the revision on the taxonomy of some crabs species in Vietnam related to the genus *Potamon* sensu lato that recently delivered by Darren C. J. Yeo and Peter K. L. Ng (2007). The results are that *Dalatomon sonii* Dang et Ho, 2007 is a synonym of *Potamon (Geothelphusa) loxophrys* Kemp, 1923. *Dalatomon* Dang et Ho is a new genus established and published in March, 2007 with type species *Dalatomon sonii*, meanwhile the *Kempamon* Yeo et Ng. was erected with type species *Kempamon loxophrys* (Kemp, 1923) being later in December, 2007. Therefore, by the priority of nomenclature, *Dalatomon* Dang et Ho, 2007 must be the valid name of genus. Besides, the new genus *Balssipotamon* gen. nov. is established with type species *Potamon (Potamonautes) fruhstorferi* Balss, 1914. Diagnosis of this new genus are given in this paper. Up to now, 2 species of this genus are recorded as *Balssipotamon fruhstorferi* (Balss, 1914), and *B. unguatum* (Dang et Ho, 2003). Based on samples of *Balssipotamon fruhstorferi* newly collected from Thuathien - Hue, this species is redescribed as well.

Key words: Freshwater crabs, Crustacea, Brachyura, Potamidae, *Potamon*, *Balssipotamon*, *Dalatomon*, Vietnam, taxonomy, new genera.

Since 2002, based on analysis of fresh-water crabs samples collected from south-central Vietnam, four new genera of crabs allied to the genus "*Potamon*" sensu lato were established and published in Vietnam:

1. *Vietopotamon* Dang et Ho, 2002 (Journal of Biology, 24(2): 1-8, fig. 1).

Type species: *Vie topotamon aluoiensis* Dang et Ho, 2002.

2. *Villopotamon* Dang et Ho, 2003 (Journal of Biology, 25(3): 7-13, fig. 1).

Type species: *Villopotamon thaili* Dang et Ho, 2003.

3. *Donopotamon* Dang et Ho, 2005 (Journal of Biology, 27(1): 1-7, fig. 1)

Type species: *Donopotamon haii* Dang et Ho, 2005.

4. *Dalatomon* Dang et Ho, 2007 (Journal of Biology, 29(1):1-5, fig. 1).

Type species: *Potamon (Geothelphusa) loxophrys* Kemp, 1923 (= *Dalatomon sonii*

Dang et Ho, 2007).

In the study on the genus "*Potamon*" sensu lato (Potamidae) allied to Indochina and adjacent areas (Darren C. J. Yeo and Peter K. L. Ng (Raffles Bull. Zool., 2007 Supplement No 16: 273-308)), the authors revised the taxonomy of this genus including 91 species. The result is that these species are re-assigned to eight known genera (*Acanthopotamon* Kemp., 1918; *Lobothelphusa* Bouvier, 1917; *Paratelphusula* Alcock, 1909; *Neolarnaudia* Turkey et Naiyanetr, 1987; *Pilosamon* Ng., 1996; *Stelomon* Yeo & Naiyanetr; *Vietopotamon* Dang et Ho, 2002; *Villopotamon* Dang et Ho, 2003 and 18 new genera are erected, of them *Kempamon* Yeo et Ng, 2007. Besides, in this study, the authors assigned two species *Potamon unguatum* Dang et Ho, 2003, and *Potamon fruhstorferi* Balss, 1914) in the genus *Villopotamon* as *Villopotamon unguatum* (Dang et Ho, 2002) (= *Potamon unguatum* Dang et Ho, 2002) and *Villopotamon*

fruhstorferi (Balss, 1914) (= *Potamon fruhstorferi* Balss, 1914).

Recent time, based on analysis of fresh-water crabs samples collected from different localities in south-central Vietnam: Dalat (Langbian), Ninhthuan, Binhdin, Quangnam, Danang and Thuathien - Hue, it can comment and discuss on the published study mentioned above.

1. On the new genus *Kempamon* Yeo et Ng, 2007

In this study, Darren C. J. Yeo and Peter K. L. Ng (2007) erected the new genus *Kempamon* Yeo et Ng, based on type species *Potamon (Geotelphusa) loxophrys* Kemp, 1923, with the diagnosis of this new genus, especially the structure of male GO1, expressed in photograph of detail structure of syntype of *Kempamon loxophrys* (Kemp, 1923) (male (24.8 × 20.1 cm), deposited in ZSIC India.

The special note that is taxonomical characteristics of *Potamon (Geotelphusa) loxophrys* Kemp, 1923 (= *Kempamon loxophrys*) given in diagnosis and photograph in this study are identified with description of the new crab species *Dalatomon sonii* sp. nov. Dang et Ho, 2007, specimens of this new species has been collected from Dalat, the same locality of *Potamon (Potamonautes) loxophrys* (Liangbiang - Dalat). The study results showed that *Dalatomon sonii* is certainly a synonym of *Potamon (Geotelphusa) loxophrys* Kemp, 1923. Based on this species, a new genus *Dalatomon* gen. nov. has been established and published in

Journal of Biology, 27(1), March, 2007: 1-5, fig. 1 (1-6) at the same time with the publication of the new genus *Kempamon* gen. nov. However, the new genus *Dalatomon* Dang et Ho was published in March, 2007 meanwhile the genus *Kempamon* Yeo et Ng was published lately, in December, 2007. So, *Dalatomon* Dang et Ho, 2007 must be considered as the valid name of this new genus with type species *Potamon (Geotelphusa) loxophrys* Kemp, 1923 (= *Dalatomon loxophrys* (Kemp, 1923)).

2. On the genus *Vilopotamon* Dang et Ho, 2003

In the publication of Dang Ngoc Thanh & Ho Thanh Hai (2003), the new crab species *Vilopotamon thaii* belonging to new genus *Vilopotamon* Dang et Ho, 2003 was described from southern Vietnam with diagnosis: Carapace largely transverse, nearly rectangular. Latero-posterior region densely pubescent (by which the etymology of the genus name as *villosity*). Front bilobed. Frontal margin concave at middle. Postorbital crista sharp, postfrontal lobes distinctly separated from postorbital cristae. Male terminal segment of abdomen equilateral-triangular with top largely round, lateral border concave at middle, slightly longer than VI segment. GO1 in male with basal large, distal part tapering, outer border concave. Terminal segment 0.4 time length of subterminal segment, basal part slightly stout, distal part curved filiform. Ambulatory legs slightly long, slender (fig. 1).

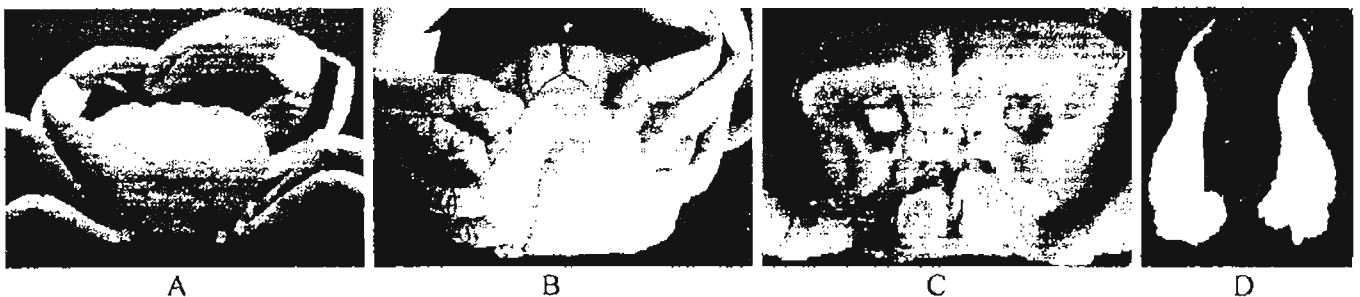


Figure 1. *Vilopotamon thaii* Dang et Ho, 2003. Male (ZMH)
A. dorsal view; B. ventral view; C. frontal view; D. GI male.

In this publication also, another new crabs species *Potamon unguatum* Dang et Ho, 2003 was described with diagnosis: Carapace

transverse, trapezoid, strongly swollen, surface smooth with violet-greenish colour. Front bilobed but frontal margin slightly sinuous.

Postfrontal and postorbital cristae distinct, horizontally straight, continuously connected. Epibranchial tooth indistinct, latero-anterior crista distinct granulose. Male terminal segment of abdomen equilateral-triangular, lateral

margin straight, top round. Ambulatory legs short and stout. GO1 in male with subterminal segment straight, distal part gradually tapering. Terminal segment short, unguiform, straight, 1/6 time length of subterminal segment (fig. 2).

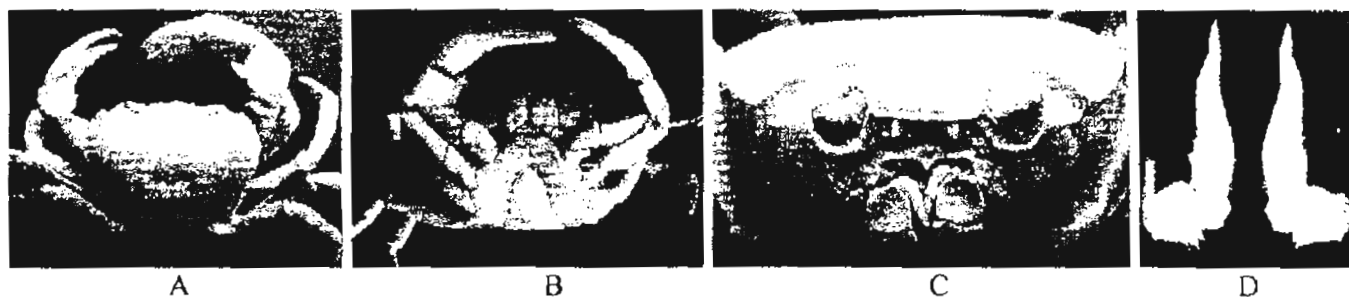


Figure 2. *Balssipotamon unguatum* (Dang et Ho, 2007). Male (ZMH)
A. dorsal view; B. ventral view; C. frontal view; D. G1 male.

In the publication mentioned above of Darren C. J. Yeo and Peter K. L. Ng, the authors included the two species *Potamon unguatum* Dang et Ho, 2003, and *Potamon fruhstorferi* (Balss, 1914) in the genus *Villopotamon* Dang et Ho, 2003. By our opinion, in taxonomical aspect, these species are not consistent with the genus *Villopotamon*, by the following basic characteristics difference: Carapace largely transverse, nearly rectangular (versus carapace transverse, trapezoid); Latero-posterior region densely pubescent (versus not pubescent); GO1 in male with terminal segment long, distally curved filiform (versus GO1 with terminal segment short, unguiform); ambulatory legs slightly long, slender (versus ambulatory legs short and stout).

Up to now, *Villopotamon thaii* was found only in mountainous area at Bana Nuichua (Danang city) with an altitude approximately 1,000m ASL, while *Potamon unguatum* and *Potamon fruhstorferi* are distributed in highland area from Thuathien - Hue to Binhdinh with lower altitude, 100-600 m ASL. By the mentioned above differences in taxonomy characteristics and ecological distribution, it can show that these two species *P. unguatum* and *P. fruhstorferi* can't be assigned at all to the genus *Villopotamon*, but to a new genus *Balssipotamon* gen. nov..

***Balssipotamon* gen. nov.**

Type species: *Potamon (Potamonnautes) fruhstorferi* Balss, 1914.

Diagnosis: Carapace transverse, trapezoid, strongly swollen, surface smooth, front bilobed. Latero-anterior crista indistinct, Postfrontal and postorbital cristae distinct, continuously connected, Frontal lobes poorly developed. Male terminal segment of abdomen equilateral-triangular with round top, lateral border straight. GO1 with subterminal segment straight, distal part gradually tapering. Terminal segment short, unguiform, slightly curved or straight.

The new genus *Balssipotamon* gen. nov. possesses basic characters that are clearly different from the genus *Villopotamon*, such as: Carapace not pubescent on latero-posterior region, GO1 with straight subterminal segment, terminal segment short, unguiform (table 1). Until now, only two species belonging to this genus recorded in south-central Vietnam such as *Balssipotamon fruhstorferi* (Balss, 1914) and *B. unguatum* (Dang et Ho, 2002).

Etymology: The genus is named after Balss H., arbitrarily combined with genus name *Potamon*, in recognition of his contribution to erect species *Potamon (Potamonnautes) fruhstorferi*. Gender is neuter.

The description of *Potamon fruhstorferi* Balss, 1914 (= *Balssipotamon fruhstorferi* (Balss, 1914) realized by the author at that time based only on female specimens, collected from Phuc son (Annam), nowadays is Phuocson belonging to Quangnam province, south-central Vietnam. For this reason, many male characteristic details (male GO1, abdomen

segment VII etc.) of this species rested unknown in this publication of Balss H. and later, in monography of Bott R. (1970) as well. In 2000, a lot of specimens including male and female of this species has been collected from Aluoi belonging to Thuathien - Hue province,

south-central Vietnam (not far from Phuocson, type locality of this species. Based on this material, a redescription of *Balssipotamon fruhstorferi* (Balss, 1914) is done, to complete the knowledge on the taxonomy of this species.

Table 1

Comparison of diagnostic characters of genera
Balssipotamon gen. nov. and *Villopotamon* Dang et Ho

<i>Balssipotamon</i> gen. nov.	<i>Villopotamon</i> Dang et Ho
Carapace largely transverse, trapezoid, flat	Carapace transverse, nearly rectangular, swollen
Carapace surface smooth, without pubescent latero-posterior region	Carapace surface with densely latero-posterior region
Postfrontal and postorbital cristae sharp, horizontally straight, continuously connected postfrontal lobes poorly developed	Postfrontal and postorbital cristae distinct, separated, postfrontal lobes developed, rugose
Male terminal segment of abdomen equilateral-triangular with round top, lateral border straight	Male terminal segment of abdomen equilateral-triangular with largely round top, lateral border moderately concave at middle
Ambulatory legs short	Ambulatory legs long, slender.
GO1 in male slender, subterminal segment straight, terminal segment short, unguiform	GO1 in male stout, subterminal segment outer border concave, terminal segment long, curved filiform

***Balssipotamon fruhstorferi* (Balss, 1914)**
(fig. 3)

Potamon (*Potamonautes*) *fruhstorferi* Balss, Zool. Jb. (Syst.), 37(4): 403, T.15, f.2, Abb. A,

B, C.

Ranguna (*Ranguna?*) *fruhstorferi*, Bott, Abhand. Senck. Naturf. Gesell., 526: 172, T. 49, f. 60.

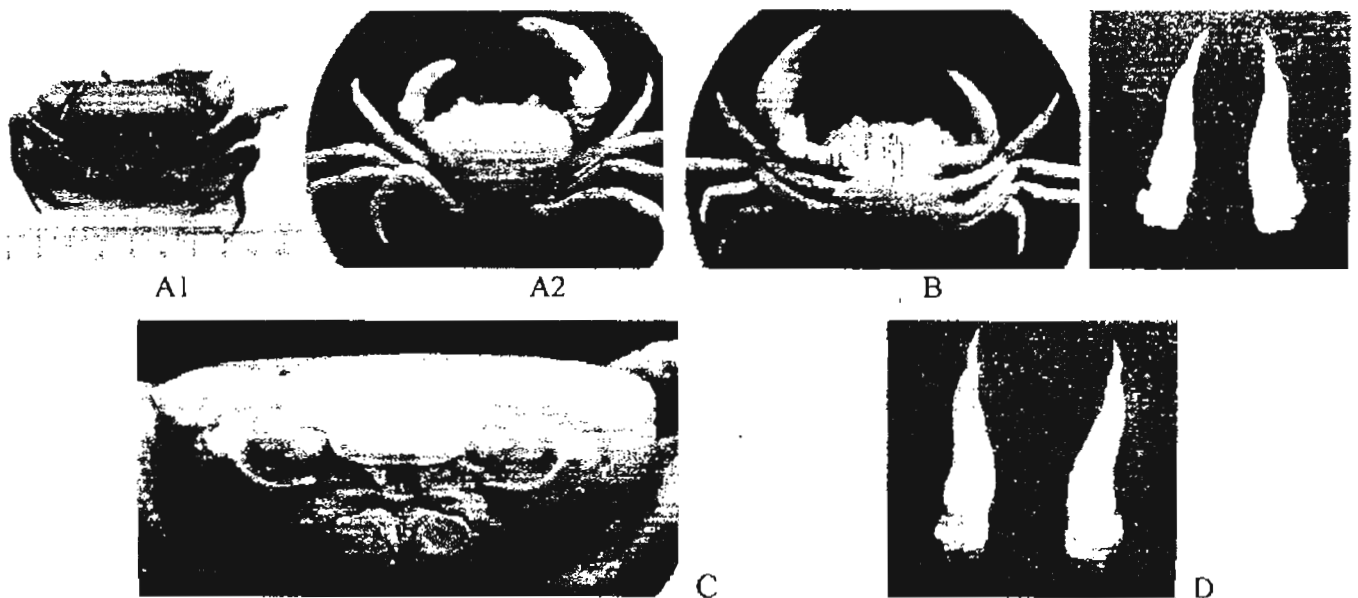


Figure 3. *Balssipotamon fruhstorferi* (Balss, 1914). Male (ZMH)
A. dorsal view (A1. living sample; A2. fixed sample); B. ventral view; C. frontal view; D. G1 male.

Diagnosis: Carapace transverse, trapezoid, strongly swollen, surface smooth, with orange color interposed deeply violet. Front bilobed but anterior margin slightly concave at middle. Epibranchial tooth and latero-anterior crista indistinct granulose. Postfrontal and postorbital cristae distinct, continuously connected. Postfrontal lobes poorly developed. Semilunar, H-shaped grooves distinct. Male terminal segment of abdomen equilateral-triangular with round top, lateral border straight. GO1 with subterminal segment straight, distal part gradually tapering. Terminal segment short, unguliform, slightly curved, long 1/5 time length

of subterminal segment. G2 long, slender, distal segment shorter than basal segment. Ischium maxiliped III slightly rectangular, merus long shorter than wide, exopod long 1/3 merus. Ambulatory legs short, stout.

Distribution: South - Central Vietnam, from Thuathien - Hue to Quangnam.

Allotype: 1 male, collected from the stream at Aluoi (Thuathien - Hue province), Vietnam, deposited in ZMH, Vietnam.

Paratype: 2 males, 2 females collected also from above location, deposited in ZMH, Vietnam.

Measurements

Parameters	Male	Female
Carapace width (mm)	33-36	37-44
Carapace length (mm)	27	30-37
Carapace depth (mm)	19	20-27
Width between two orbits (mm)	20-21	22
Frontal width (mm)	9-10	11-12
Carpus length of cheliped (mm)	11-12	12-13
Propodus length of cheliped (mm)	12-18	15-16
Dactylus length of cheliped (mm)	13-17	16
Length of terminal segment of abdomen (mm)	5	7-9
Length of segment of abdomen VI (mm)	4,5	6,5-8,5
GO1 Male: terminal segment/subterminal segment	1/5	

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VỀ PHÂN LOẠI HỌC CỦA MỘT SỐ LOÀI CUA NƯỚC NGỌT THUỘC GIỐNG *POTAMON* Ở VIỆT NAM

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TÓM TẮT

Từ năm 2002 trở lại đây, 4 giống cua nước ngọt mới được xác lập ở Việt Nam là *Vietopotamon* Dang et Ho, 2002, *Villopotamon* Dang et Ho, 2003, *Donopotamon* Dang et Ho, 2005 và *Dalatomon* Dang et Ho, 2007. Hầu hết các giống cua mới này đều tìm thấy ở Nam Trung Bộ Việt Nam (từ Thừa Thiên - Huế tới Ninh Thuận). Các tác giả đã bàn luận về quan điểm tu chỉnh phân loại học giống cua thuộc nhóm *Potamon* sensu lato của các tác giả Darren C. J. Yeo và Peter K. L. Ng (2007) đưa ra gần đây đồng thời đã xem lại về phân loại học của một số loài cua thuộc giống "*Potamon*" sensu lato ở Việt Nam. Kết quả là loài *Dalatomon sonii* Dang et Ho, 2007 phải được xem là synonym của loài *Potamon* (*Geotelphusa*) *loxophrys* Kemp, 1923 (= *Dalatomon loxophrys* (Kemp, 1923)). Giống mới *Dalatomon* Dang et Ho được xác lập và công bố vào tháng 3/2007 trong khi giống *Kempamon* Yeo et Ng, 2007 được xác lập muộn hơn, tháng 12/2007. Bởi vậy, theo luật ưu tiên danh pháp, *Dalatomon* Dang et Ho 2007, phải được coi là tên giống có hiệu lực. Giống cua mới *Balssipotamon* Dang et Ho được xác lập với loài chuẩn *Potamon* (*Potamonautes*) *fruhstorferi* (= *Balssipotamon fruhstorferi* (Balss, 1914)). Cho tới nay, ở Việt Nam, có hai loài thuộc giống này đã được xác định, đó là *Balssipotamon fruhstorferi* (Balss, 1914) và *B. unguatum* (Dang et Ho, 2003). Các đặc điểm chẩn loại của giống mới này được mô tả, đồng thời *Balssipotamon fruhstorferi* cũng được mô tả chi tiết trên cơ sở các mẫu vật gồm cả đực và cái thu được tại Thừa Thiên - Huế năm 2000.

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VỀ PHÂN LOẠI HỌC CỦA MỘT SỐ LOÀI CUA NƯỚC NGỌT THUỘC GIỐNG *POTAMON* Ở VIỆT NAM

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