

**SINOPOTAMON BAIYANENSE, A NEW SPECIES OF
CAVERNICOLOUS POTAMID CRAB
(CRISTACEA: DECAPODA: BRACHYURA: POTAMIDAE)
FROM SOUTHERN CHINA**

N. K. Ng and Ai-Yun Dai

ABSTRACT. - One new species of potamid, *Sinopotamon baiyanense*, is described from a cave in Hunan Province, China. The new species is closely allied to *Sinopotamon liuyangense* Dai, 1995, from Hunan Province, China and *Sinopotamon nanlingense* Dai & Jiang, 1991, from Guangxi Province, China. The new species of *Sinopotamon* can be distinguished from *S. liuyangense* and *S. nanlingense* by the form of the carapace, cheliped, male abdomen and male first and second pleopods.

KEY WORDS. - New species, Potamidae, taxonomy, China.

INTRODUCTION

The freshwater crabs of China are very diverse and widely distributed. There are at least some 160 species and subspecies of potamid crabs from southern and central part of China that has been described (Ng & Dudgeon, 1992). The habitats of these crabs are also very diverse. While most of them are found in ponds, open fields or mountain streams, there are very few crabs found inside caves. Ng & Trontelj (1996) described *Daipotamon minos* which was found inside a cave in Libo County, southeastern Guizhou, China. There are no reports on cavernicolous *Sinopotamon* in China to date. Recently, two specimens of *Sinopotamon* were collected from a cave in Hunan Province, China. Examination of these specimens showed that although they were similar to *S. liuyangense* Dai, 1995, and *S. nanlingense* Dai & Jiang, 1991, there were enough morphological differences to recognise them as new species, as proposed in the present contribution.

The specimens are deposited in the Institute of Zoology, Academia Sinica, (AS) and the Zoological Reference Collection, School of Biological Sciences, National University of Singapore (ZRC). The abbreviations G1 and G2 are used for the male first and second

N. K. Ng - School of Biological Sciences, National University of Singapore, Kent Ridge 119260, Republic of Singapore. **Dai Ai-Yun** - Institute of Zoology, Academia Sinica, 19, Zhongguancun Road, Haidian, Beijing 100080, People's Republic of China.

pleopods (gonopods) respectively. The terminology adopted here follows Ng (1988). The synonymy of Sinopotamidae Bott, 1970, under the Potamidae Ortmann, 1896, follows Ng (1988).

TAXONOMY

Family Potamidae Ortmann, 1896

Genus *Sinopotamon* Bott, 1967

Sinopotamon baiyanense, new species
(Figs. 1, 2)

Materials examined. - Holotype, 1 male (AS, uncatalogued), carapace length 48.3 mm, carapace width 37.1 mm; China: Northeastern Hunan Province, very near Hubei Province, Longshan County, Baiyan Cave (29.5°N, 109.4°E), coll. A. Bedos & L. Deharveng, 15 Aug. 1995.

Paratype - 1 male (ZRC 1997.551), carapace length 49.5 mm, carapace width 39.7 mm, same data as holotype.

Description. - Carapace broader than long, not inflated, dorsal surface gently convex, smooth, punctated especially on the anterior third; epibranchial region covered with fine rugae and granules. Cervical groove broad, moderately deep, H-shaped groove between gastric and cardiac regions distinct. Cardio-intestinal region with shallow transverse groove; pterygostomial, suborbital and sub-branchial regions smooth. Epigastric crest low, rugose; postorbital crest low but distinct. Dorsal orbital margin ridged, ex-orbital angle triangular, outer margin with 6 granular teeth. Epibranchial tooth distinct, blunt, antero-lateral margin carinated with 13 serrated teeth and several granules. Frontal margin smooth, deflected, emarginated medially, supraorbital margin with fine, rounded granules; infraorbital margin smooth. Eyes developed.

Third maxilliped ischium rectangular, about 1.6 times as long as broad; merus medially depressed, about 1.2 times as broad as long, exopod reaching proximal 1/3 of merus, exopod with well-developed flagellum, longer than width of merus.

Chelipeds unequal, outer surface gently rugose, fingers subequal to slightly longer than palm; carpus with a triangular spine on inner distal angle, small tooth at base; larger manus about 1.4 times as long as high, about 1.1 times as long as movable finger, fingers close without gap.

Ambulatory legs stout, second ambulatory leg longest, dactylus slender, cross-section quadrate; surface of merus gently rugose, dorsal margin gently serrate to uneven, with small blunt subdistal spine; last leg with propodus about 2 times as long as broad, slightly longer than dactylus.

Surface of anterior thoracic sternites slightly punctate; median groove of thoracic sternum moderately deep. Sutures between sternites 4/5, 5/6, 6/7 interrupted, space relatively broad; longitudinal suture between sternites 7 and 8 short.

Male abdomen broadly triangular, with all segments free, segment six about 1.9 times as

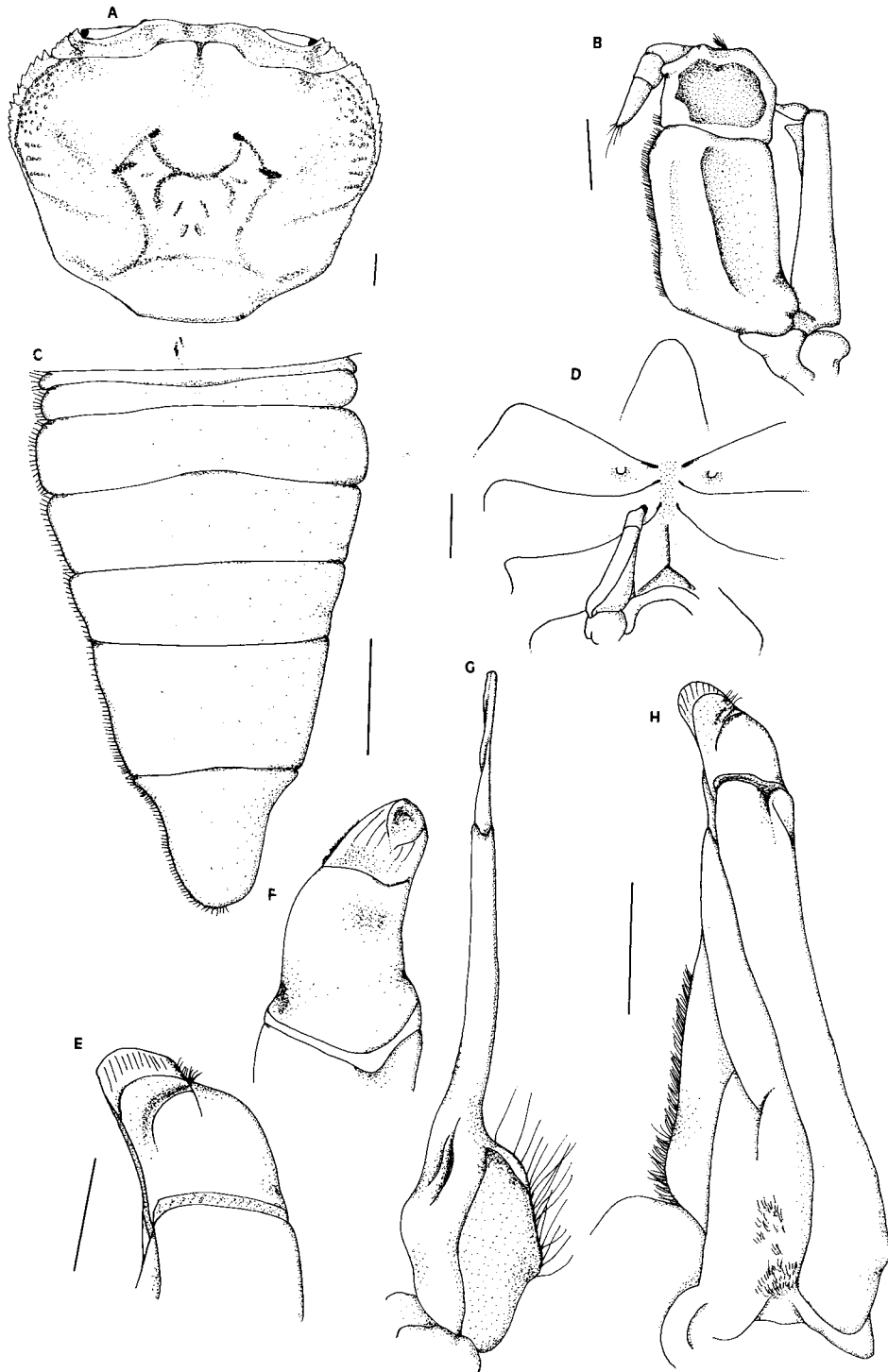


Fig. 1. *Sinopotamon baiyananense*, new species, from Guizhou Province, southern China; holotype male. A) carapace, B) third maxilliped, C) abdomen, D) natural position of the first pleopod, E, F, H) first pleopod and its enlarged last segment, G) second pleopod.

broad as long, twice length of segment five; telson tongue-shaped, about 1.2 times as broad as long, longer than segment six; lateral margins of telson deeply concave; lateral margins of segment five and six gently concave; segment one rectangular, reaching bases of coxae of fourth ambulatory leg.

G1 stout, relatively straight, not reaching tubercle of abdominal lock. Terminal segment short, convex, bending gently inwards towards median part of thoracic sternum in situ (ventral view), tip slightly bifurcated with chitinous prominence, about 2.0 times as long as broad; subterminal segment about 5.2 times as long as terminal segment, distal part of outer margin with distinct broad cleft; groove for G2 ventral in position; G2 subequal in length to G1, distal segment well developed; basal segment about 3.1 times as long as distal segment.

Remarks. - The freshwater crabs of China are extremely diverse with more than 160 species and subspecies reported from Guizhou Province (Dai et al., 1984; 1985; Dai & Yuen, 1988; Dai, 1990) and Wuling Mountain Area (Dai, 1995). The present two specimens proved to be a new species of *Sinopotamon* very similar to *S. liuyangense* Dai, 1995, from Wuling Mountain Area, a mountainous region between the borders of Hubei, Hunan, Guizhou and Sichuan Provinces of China and *S. nanlingense* Dai & Jiang, 1991, from Guangxi Province, China.

Sinopotamon baiyanense can be differentiated from *S. liuyangense* by the following characters viz: epibranchial region with fine rugae and granules (vs. rugose, without granules); cervical groove broad (vs. narrow); post-orbital crest relatively sharp (vs. blunt); front distinctly deflected downwards (vs. slightly deflected); carpus of cheliped with a small tooth at its base (vs. strong spine present); last leg with propodus about 2 times as long as broad (vs. 1.3 times); subterminal segment of the first male pleopod about 5.2 times as long as terminal segment (vs. 3.3 times in the latter); G1 terminal segment convex (vs. narrow); and G2 basal segment about 3.1 times as long as last segment (vs. 2.3 times).



Fig. 2. *Sinopotamon baiyanense*, paratype male, carapace length 48.3mm and carapace width 37.1mm (ZRC 1997.551).

Sinopotamon baiyanense can be differentiated from *S. nanlingense* by the following characters: G1 penultimate segment about 5.2 times as long as last segment (vs. 3.2 times) and the last G1 segment is much more convex.

Ecology. - Baiyan Cave (White Rock Cave) is a small, relatively superficial cave (only 10m under the plateau) with small streams. The average temperature is about 18.4 °C, water temperature between 20.9 - 21.3 °C and pH is 8.7 - 8.8. The two specimens were collected at about 150m from the entrance.

Sinopotamon baiyanense does not show features typical of cavernicolous animals such as reduced eyes, loss of body pigmentation or elongated pereopods. The eyes are well-developed, filling almost the entire orbit but the cornea are not fully formed and not completely pigmented. It seems likely that this species is predominantly cavernicolous but since the cave is relatively small and superficial, may make forays into the surrounding region. This has been observed in cave species of freshwater crabs with well-developed eyes and body pigmentation that nevertheless move into epigeal habitats (Ng, 1989; 1992; Ng & Goh, 1987; Ng & Trontelj, 1996).

Etymology. - This species is named after the type locality, Baiyan Cave in Longshan County, Hunan Province, central China.

ACKNOWLEDGEMENTS

We would like to thank Dr. Louis Deharveng for the specimens and information on the Baiyan Cave; Dr. Peter Ng for subsequently passing the crab to us for study; Dr. Peter Ng, Mr. Tan Swee Hee and the two referees for critically reading the manuscript; Mr. Yip Hoi Kee for the photographs of the specimens.

LITERATURE CITED

- Bott, R., 1967. Potamiden aus Ost-Asien (*Parapotamon* de Man, *Sinopotamon* n. gen., *Candidiopotamon* n. gen., *Geothelphusa* Stimpson) (Crustacea, Decapoda). *Senckenbergiana biol.*, **48** (3): 203 - 220, Taf. 7-10, Abb. 1-13.
- Bott, R., 1970. Die Süßwasserkrabben von Europa, Asien, Australien und ihre Stammesgeschichte. Eine Revision der Potamoidea und Parathelphusoidea (Crustacea, Decapoda). *Abh. Senckenberg. Natur. Gesell.*, **526**: 1-338, pls. 1-58.
- Dai, A. Y., 1990. On the zoogeographical distribution of freshwater crabs in southeastern China. *Snake Res. Lab.*, Beijing, **1**: 375-385 (In Chinese).
- Dai, A. Y., 1995. New taxa of freshwater crabs (Crustacea; Decapoda; Brachyura; Potamidae) from Wuling Mountain Area, China. *J. Taiwan Mus.*, **48**(1): 59-82.
- Dai, A. Y. & Y. P. Jiang, 1991. On Three New Species of *Sinopotamon* (Decapoda: Sinopotamidae). *Acta Zootax. Sinica*, **16**(3): 290 - 296, Figs 1-3 (in Chinese with English abstract).
- Dai, A. Y. & S. L. Yuen, 1988. A study of freshwater crabs from Chishui county of Guizhou Province. *Acta Zootax. Sinica*, **13**(2): 127-130 (In Chinese with English abstract).
- Dai, A. Y. & Y. C. Sung, 1975. Description of several new species of freshwater crabs belonging to the intermediate hosts of lung flukes. *Acta Zool. Sinica*, **21**(3): 257-264, pls. 1-3 (In Chinese).

Ng and Dai: Cavernicolous potamid crab from southern China

- Dai, A. Y., Y. C. Song, M. G. Li., H. Y. Chen & Q. X. Hu, 1984. A study of freshwater crabs from Guizhou Province I. *Acta Zootax. Sinica*, **9**(3): 257-267, pl. 1 (In Chinese with English abstract).
- Dai, A. Y., Y. C. Song, M. G. Li, H. Y. Chen & Q. X. Hu, 1985. A study of freshwater crabs from Guizhou Province II. *Acta Zootax. Sinica*, **10**(1): 34-43, 1 pl. (In Chinese with English abstract).
- Ng, P. K. L., 1988. *The freshwater crabs of Peninsular Malaysia and Singapore*. Department of Zoology, National University of Singapore, Shinglee Press, Singapore, pp. i-viii, 1-156, 4 color pls.
- Ng, P. K. L., 1989. The identity of the cavernicolous freshwater crab *Potamon (Thelphusa) bidiense* Lanchester, 1900 (Crustacea: Decapoda: Brachyura: Gecarcinucidae) from Sarawak, Borneo, with description of a new genus. *Raffles Bull. Zool.*, **37** (1&2): 63-72.
- Ng, P. K. L., 1992. A new genus and species of cavernicolous crab (Brachyura: Potamidae) from Kanchanaburi, Thailand, with comments on the genera, *Tiwaripotamon* Bott, 1970 and *Larnaudia* Bott, 1966. *Mém. Biospeol.*, **19**: 159-167.
- Ng, P. K. L. & R. Goh, 1987. Cavernicolous freshwater crabs (Crustacea, Decapoda, Brachyura) from Sabah, Borneo. *Stygologia*, **3**(4): 313-330.
- Ng, P. K. L. & D. Dudgeon, 1992. The Potamidae and Parathelphusidae (Crustacea: Decapoda: Brachyura) of Hong Kong. *Invert. Tax.*, **6**: 741-768.
- Ng, P. K. L. & P. Tronetejl, 1996. *Daipotamon minos*, a new genus and species of potamid crab (Crustacea: Decapoda: Brachyura) from a cave in China. *Proc. Biol. Soc. Wash.*, **103** (3): 476-481.
- Ortmann, A., 1896. Das system der Decapoden-krabse. *Zool. Jahrb. (Syst.)*, **9**: 409-453.

Received 14 Feb 1997
Accepted 15 May 1997