

中国海倒颚蟹属(甲壳动物亚门: 十足目:豆蟹科)两新记录种*

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提要 长期以来,中国海倒颚蟹属仅记录一种,即渤、黄、东海底栖动物常见种异足倒颚蟹 *Asthenognathus inaequipes* Stimpson, 1858。作者对中国科学院海洋生物标本馆收藏的采自中国海的全部倒颚蟹属标本进行系统研究后共发现除该种外还有以下 2 种,为中国海的新记录:宽身倒颚蟹 *Asthenognathus gallardoi* Serène and Soh, 1976 和六角倒颚蟹 *Asthenognathus hexagonum* Rathbun, 1909, 均采自南海北部。异足倒颚蟹为中国北方和东部海域常见种,但未见于南海。六角倒颚蟹与异足倒颚蟹形态上较相似。两者差异在于六角倒颚蟹头胸甲六角形,后缘约与额-眼眶缘等宽,背面有 2 对凹陷,后侧缘有 2 条颗粒脊,而异足倒颚蟹头胸甲后缘约为额-眼眶缘宽的 1.5 倍,背面仅有浅横沟。宽身倒颚蟹与其他两种形态差异较大,头胸甲宽约为长的 1.9 倍。

关键词 倒颚蟹属,豆蟹科,新记录,中国海

中图分类号 Q959.223

倒颚蟹属 (Genus *Asthenognathus*) 是一类小型浅海底栖蟹类,穴居泥沙海底,行动迟缓。全世界已知仅有四种:异足倒颚蟹 *Asthenognathus inaequipes* Stimpson, 1858, 六角倒颚蟹 *Asthenognathus hexagonum* Rathbun, 1909, 宽身倒颚蟹 *Asthenognathus gallardoi* Serène and Soh, 1976, 大西洋倒颚蟹 *Asthenognathus atlanticus* Monod, 1933。前三种分布于印度-西太平洋海域,第四种分布于非洲、欧洲大西洋沿岸及地中海。过去中国海域只记录有异足倒颚蟹一种,分布于渤、黄、东海(沈嘉瑞,刘瑞玉 (Shen et Liu), 1963; Dai 戴爱云, Yang 杨思谅 1991 未记载);在日本近海(相模湾、伊势湾、大阪湾、濑户内海、伊豆群岛等)也仅此一种。作者在系统研究倒颚蟹属时发现两个在中国海尚未报道过的稀有种,即宽身倒颚蟹 *Asthenognathus gallardoi* 和六角倒颚蟹 *Asthenognathus hexagonum*。

倒颚蟹属 Genus *Asthenognathus* Stimpson, 1858

Asthenognathus Stimpson 1858: 107; 1907:

139. —Rathbun 1910:339. —Sakai 1939:601. —Monod 1956:339,383.

鉴别特征: 隶属豆蟹科。头胸甲宽度明显大于长度,横圆柱形或多边形,具后侧斜面。额宽。眼窝宽,眼柄较长。第三颚足座、长节不愈合,座节等于或稍长于长节,触须较大,指节圆柱形,位于前节(掌节)末端。

中国海种的检索:

- (1) 头胸甲宽度约为长度的 1.9 倍;背面有两条模糊的光滑隆脊,且相互平行……………
…………… *Asthenognathus gallardoi*
头胸甲宽度小于长度的 1.5 倍;背面无隆脊…………… 2
- (2) 头胸甲梯形,后侧缘上部有一条颗粒隆脊;后缘与额眼缘约等宽……………
…………… *Asthenognathus inaequipes*
头胸甲六角形,后侧缘上部有两条颗粒隆脊;后缘为额眼缘宽 1.5 倍……………
…………… *Asthenognathus hexagonum*

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1 宽身倒颚蟹 *Asthenognathus gallardoi* Serène and Soh, 1976 (图 1)

Asthenognathus gallardoi Serène & Soh, 1976: 27, fig. 28A, B, pl. 8 fig. A, B. —Ghani & Tirmizi, 1991: 100, text-fig. 1A-G.

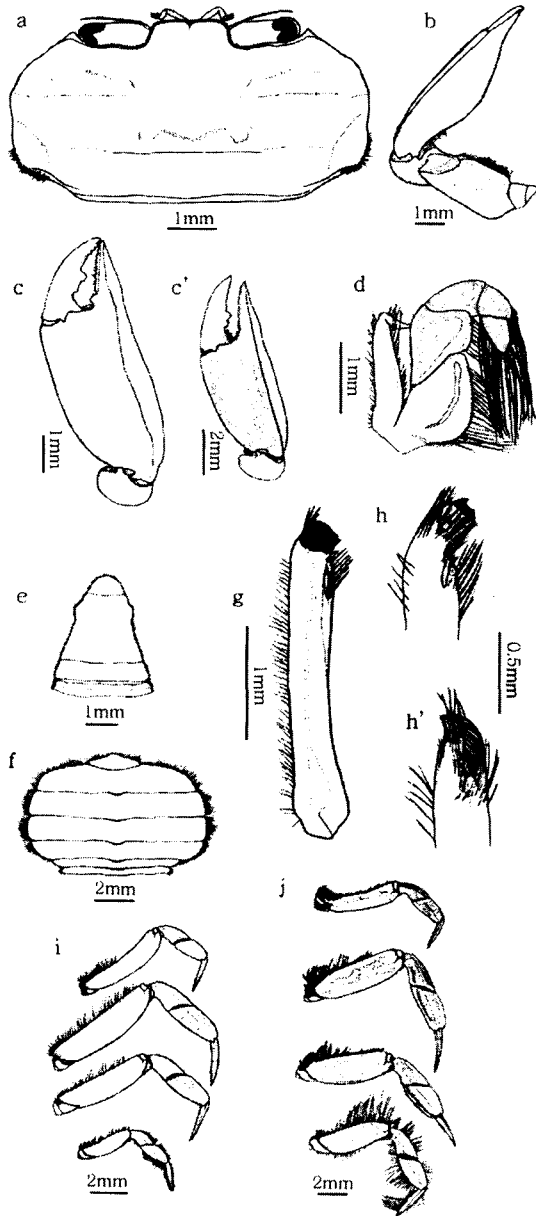


图 1 宽身倒颚蟹: a. 雄性头胸甲; b. 螯足腹面观; c. 雄性大螯外侧观; c'. 雌性大螯外侧观; d. 第三颚足; e. 雄性腹部; f. 雌性腹部; g. 雄性第一腹肢; h, h'. 雄性第一腹肢末端放大; i. 雄性 1—4 步足; j. 雌性 1—4 步足

Fig. 1 *Asthenognathus gallardoi* Serène and Soh, 1976: a. carapace; b. ventral view of cheliped; c. outer view of male chela; c'. outer view of female chela; d. third maxilliped; e. male abdomen; f. female abdomen; g. first gonopod of male; h, h'. tip of first gonopod; i. male ambulatory legs; j. female ambulatory legs

材料 标本号 CK54-390, 1♂♂: 头胸甲长 4.9mm, 头胸甲宽 9.2mm, 2♀♀: 头胸甲长 3.4mm, 头胸甲宽 6.6mm; 头胸甲长 6.5mm, 头胸甲宽 12.8mm; 广西涠洲岛西拱手潮间带沙滩, 21°02'N, 109°06'E, 刘瑞玉采集, 1954. 12. 27。

形态特征 头胸甲呈横八边形, 宽约为长的 1.9 倍, 表面较光滑, 分区不明显, 背面有两条较模糊, 不连续且大致平行的光滑横脊: 第一条位于螯足基部的上方, 第二条位于第二、三步足基部的上方。额宽, 约占头胸甲宽度的 1/5, 前缘几乎平截。额一眼窝缘宽度约等于后缘的宽度。后缘光滑且平直。头胸甲侧缘近中部具一向内斜行的颗粒隆脊与侧缘近中部形成一个小斜面。胃区后部具 1 略呈“M”形的凹陷, 其两侧延伸成很浅的半圆形。

第三颚足座节大于长节。长节略呈梯形, 内缘甚短, 仅为外缘长度的 1/2, 座长节间的接缝向内末角斜伸, 触须粗短, 边缘具长羽状刚毛。

螯足对称。雄性长节较雌性粗壮; 掌部膨大, 长约为高的 2 倍, 其外侧面腹缘附近具一较粗隆脊, 从基部延伸到不动指末端, 掌的内侧面具一排刚毛, 延伸至不动指基部。雄性两指合拢时间隙较大; 雄性可动指内缘中部具一枚大钝齿, 雌性为 2 枚钝齿, 其基部内侧具一簇刚毛, 不动指内缘具另一排刚毛; 雄性不动指内缘基部具 1 三角形齿, 其余部分为小齿。两性步足侧扁, 以第二对为最长; 雄性第四步足最短, 但雌性者以第一对为最短, 而且每节均较雄性宽扁。

雄性腹部分为 5 节; 第 4—6 节愈合 (即 R 节), 其两侧缘末 1/3 处各具 1 叶状突起。尾节末端宽圆。雌性腹部分为 7 节, 尾节宽约为长的 3 倍。雌性生殖孔位于第 6 胸节腹甲内侧, 边缘隆起, 中间具一圆形盖状结构, 质地稍软。

雄性第一腹肢外缘具一纵列短羽状刚毛, 近末部内、外侧面均具刺状刚毛。末部为角质喷嘴状结构, 末端扁, 向内弯曲。

Ghani 等 (1991) 描述雄性螯足可动指有一臼形齿, 雌性更发达; 第四步足退化, 约伸抵第三步足的长节末端。南海标本雌性螯足可动指有 2 个距离很近的钝齿, 与 Serène 等 (1976) 的描述相同, 而雄性齿根较宽, 靠可动指末部一端凸出呈台阶状; 雌性第四步足发育良好, 明显超过第三步足长节, 雄性步足则与 Ghani 等 (1991) 描述基本一致。

栖息环境 潮间带沙滩或岩岸的沙质沉积区,

穴居。

模式标本产地 安达曼海。

地理分布 印度-西太平洋热带种,分布于南海北部中国沿岸至安达曼海和西印度洋的阿拉伯海北部。未见于黄、东海和日本近海。

2 六角倒颚蟹 *Asthenognathus hexagonum* Rathbun, 1909 (图 2)

Asthenognathus hexagonum Rathbun, 1909: 111; 1910: 339, fig. 24, pl. 2 fig. 14. —Serène & Soh, 1976: 27, fig. 28C.

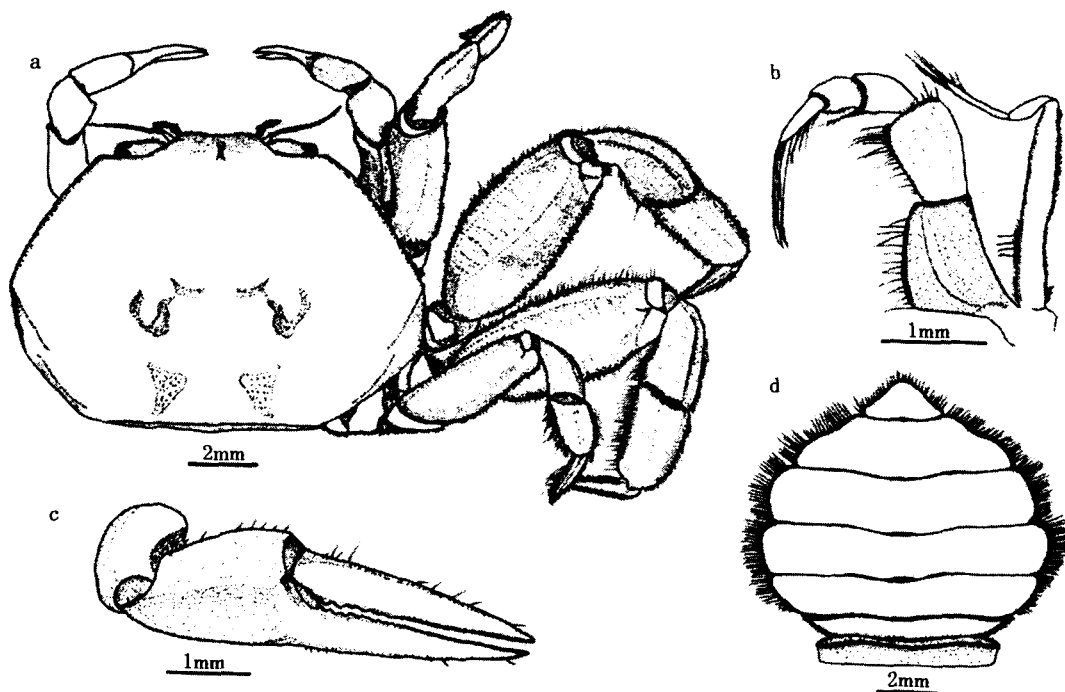


图 2 六角倒颚蟹: a. 雌性背面观; b. 第三颚足; c. 雌性腹部; d. 雌性大螯

Fig. 2 *Asthenognathus hexagonum* Rathbun, 1909: a. female in dorsal view; b. third maxilliped; c. female abdomen; d. female chela

材料 标本号* NCOS-186B-23, 1 ♀, 头胸甲长 8.4mm, 头胸甲宽 11.5mm; 南海北部广东碇州岛外海, 20°45'N, 110°45'E。水深 26m, 底质软泥, 刘瑞玉采集, 1960. 4. 10。

形态特征 头胸甲呈六角形, 宽为长的 1.4 倍, 表面有麻点, 分区不明显, 胃区有一对短横沟, 紧靠横沟后外侧还有一“U”形浅槽, 肠区两侧各有一由不规则小点组成的三角形凹陷。额缘中央微凹, 两侧微凸, 背面中线具一短纵沟, 额-眼窝缘与头胸甲后缘等宽, 前侧缘在第一、二步足间的基部上方处各具一向内斜脊, 其下方还具另一条斜脊, 两条斜脊不相交, 与后侧缘形成一小斜面, 前侧缘密集 2—3 列颗粒脊形成一条粗边缘。

第三颚足纤细, 座节基部宽于末端, 近内侧具一斜行浅沟。长节末端宽于基部, 长节与座节

约等长, 两节之间接缝横直; 触须较细长, 尤其指节更细, 边缘具长羽状刚毛。

雌性螯足细小。掌部稍膨大, 长约为高的 2 倍; 可动指显著长于掌部, 指节内缘基半部具细钝锯齿, 末半部光滑无齿, 两指合拢时无间隙。第 2 对步足最长, 约为头胸甲长的 1.7 倍, 第 4 对最短; 第 2、3 对步足粗大, 长节甚宽, 长约为宽的 2.5 倍, 后 3 对步足表面密布短毛, 且具横排小凹点。

雌性腹部分为 7 节; 尾节呈钝三角形, 宽约为长的 2 倍, 末端宽圆。生殖孔位于第 6 胸节腹甲, 开口前面的腹甲略凹陷, 被一光滑的长条形突起覆盖, 生殖孔后方第六、七节腹甲交界处还有一对凹陷。

此标本为目前最大个体记录。Rathbun (1910) 和 Serène 等 (1976) 记录的最大个体头胸甲不超过 8mm。Rathbun (1910) 没有描述螯足基部细

齿,其插图中也看不到该特征。头胸甲后侧缘上方的颗粒隆脊以前的文献都未曾提及。雄性迄今无记录。

栖息环境 软泥底质,水深12—26m。

模式标本产地 泰国湾。

地理分布 西太平洋热带种,迄今仅记录于南海中国广东沿岸;泰国湾和菲律宾马尼拉湾。向北未见于东海和日本近海海域,向西未见于印度洋。

3 异足倒颚蟹 *Asthenognathus inaequipes* Stimpson, 1858 (图3)

Asthenognathus inaequipes Stimpson, 1858: 107; 1907: 140, pl. 14, fig. 1. —Sakai, 1935: 206, fig. 110; 1939: 601, text-fig. 86a, b; 1976: 587. —Shen et Liu, 1963: 144.

材料

渤海:标本号 IOV147B-19, 1♂, 16m, 1958. 4. 2; IOV148B-19, 1♂ 3♀, 11. 5m, 1958. 4. 2; * NCOS-Y204B-6A, 1♂ 1♀, (40°30'N, 121°30'E), 11m, 1959. 4. 28; NCOS-Y202B-14, 1♂ 1♀, (40°32'N, 121°56'E), 9m, 1959. 4. 28; NCOS-Y246B-5, 1♀, (37°50'N, 119°06'E), 12m, 1959. 5. 11; NCOS-307B-17, 2♀, (40°22'N, 121°40'E), 6m, 1959. 10. 27。

黄海胶州湾 (36°00'—36°12'N, 120°07'—120°25'E): CD64-27, 1♂ 1♀, 泥滩, 1964. 6. 10; N56B-11, 1♀, St. 64001, 7m, 1964. 4. 22; N58B-17, 1♂, St. 64003, 50m, 1964. 4. 22; N66B-6, 2♀, St. 64018, 26m, 1964. 4. 23; M102A-13, 1♂ 10♀, 9m, 1964. 8. 1; M103A-14, 2♂♂ 1♀, 10m, 1964. 8. 1; M104A-13, 2♂♂ 7♀, 8m, 1964. 8. 1; M105A-6, 1♂, 1964. 8. 1; M113A-8, 4♂♂ 3♀, 13m, 1964. 8. 2; M115A-11, 1♀, 8m, 1964. 8. 2; M116A-8, 1♀, 11m, 1964. 8. 2; K178A-14, 2♂♂, 6m, 1980. 8. 2。

东海: NCOS-V229B-38, 1♂, (29°00'N, 122°15'E), 26m, 1959. 4. 2; NCOS-D58B-14, 1♂, (29°00'N, 122°15'E), 28m, 1959. 7. 8; NCOS-C52A-12, 1♂, (32°30'N, 122°15'E), 25. 5m, 1959. 10. 22; WC24B-7, 1♀, 17m, 1979. 10. 2。

HD35A-3, 1♂, 6m, 1990. 5. 23; PP83A, 1♀, 11m, 1980. 5. 21; PP92A-8, 1♂, 7m, 1980. 6. 17; 共 23♂♂ 37♀, 头胸甲宽度 4.6—7.9mm, 头胸甲长度 6.6—11.6mm。

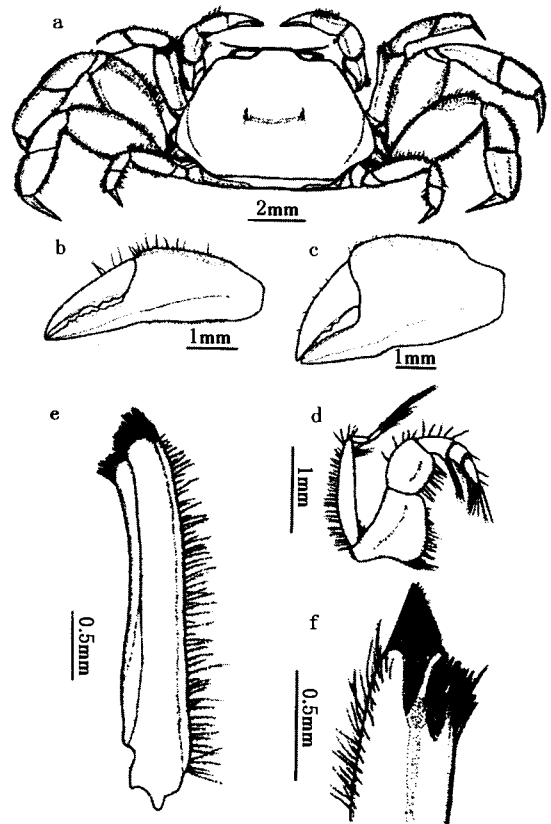


图3 异足倒颚蟹: a. 雄性背面观; b. 雌性大螯; c. 雄性大螯; d. 第三颚足; e. 雄性第一腹肢; f. 雄性第一腹肢末端放大

Fig. 3 *Asthenognathus inaequipes* Stimpson, 1858: a. male in dorsal view; b. female large chela; c. male large chela; d. third maxilliped; e. first gonopod of male; f. enlargement of first gonopod

形态特征 本种与六角倒颚蟹近似,但头胸甲呈梯形,后部更宽。头胸甲后缘约为额眼缘宽度的1.5倍。头胸甲背面较光滑,中部有一条浅横沟。雌性螯足细弱,合拢时空隙较窄;雄性螯足粗壮,合拢时空隙较宽。两种主要区别如下:

异足倒颚蟹 *Asthenognathus inaequipes* Rathbun, 1909 六角倒颚蟹 *Asthenognathus hexagonum* Stimpson, 1858

- | | |
|--------------------------|-----------------------------|
| (1) 头胸甲略呈梯形 | 头胸甲六角形 |
| (2) 头胸甲后缘约等于额一眼眶缘宽度的1.5倍 | 后缘与额一眼眶缘约等宽 |
| (3) 头胸甲背面仅有一条模糊横沟 | 背面中胃区有成对的U形凹陷,近后缘有一对三角形小凹点区 |
| (4) 雌、雄大螯两指间有空隙(雌性较窄) | 雌性大螯两指间无空隙 |

栖息环境 水深 7—50m, 泥质或砂质泥海底。
模式标本产地 日本。
地理分布 为中国—日本海域特有区系成分。中国仅发现于渤海、黄海、东海近岸, 未见于南海; 日本太平洋岸近海(相模湾、伊势湾、大阪湾、濑户内海、伊豆群岛等)均有记录。

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NEW RECORD OF TWO SPECIES OF GENUS *ASTHENOGNATHUS* (CRUSTACEA: DECAPODA: PINNOTHERIDAE) FROM CHINA SEAS

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Abstract This paper reports the species of Genus *Asthenognathus* Stimpson from China seas based on the crab collections deposited in the Marine Biological Museum of Chinese Academy of Sciences, Qingdao. In addition to *Asthenognathus inaequipipes* Stimpson, 1858, commonly found in northern and eastern China seas, *Asthenognathus hexagonum* Rathbun, 1909 and *Asthenognathus gallardoi* Serène and Soh, 1976, are recorded here for the first time from China. Diagnoses of the species are given and comparisons between the two closely related species are made.

1 *Asthenognathus gallardoi* Serène and Soh, 1976 (Fig. 1)

Asthenognathus gallardoi Serène & Soh, 1976: 27, fig. 28A, B, pl. 8 fig. A, B. —Ghani & Tirmizi, 1991: 100, text-fig. 1A—G.

Material K54-390. 1 male (cl 4.9mm, cw 9.2mm), 2 female (cl 6.5mm, cw 12.8mm; cl 3.4mm, cw 6.6mm). Weizhou Island (21°02'N, 109°06'E), Tonkin Gulf, northern South China Sea, 27 December 1954. J. Y. Liu collected.

The main characteristics of the male and females agree with the descriptions by Serène and Soh 1976 and those by Ghani and Tirmizi 1991.

Diagnosis Carapace 1.9 times as broad as long, regions ill defined. Fronto-orbital margin and posterior margin sub-equal in width, with two obscure parallel transverse ridges on dorsal surface, the anterior one is at

the level of base of chelipeds and the posterior one at the level of the contact between the 2nd and 3rd ambulatory legs, and a wide M-shaped depression is found in the meta-gastric region between the two ridges. An oblique granular carina extends postero-mesially from the middle of lateral margin.

The third maxilliped stout and broad, the suture between ischium and merus oblique; segments of palp broad and short.

Chelipeds symmetric, stronger in male. Propodus slightly bulgy, with a distinct carina on outer surface extending to tip of fixed finger. One obtuse tooth on inner margin of movable finger in the male, while 2 in the female.

Lateral margin of the fused 4—6th abdominal somites (R segment) with a protrude (lateral lobe) at the distal third (Fig. 1e); telson obtuse triangular in shape. Female gonopore on 6th thoracic sternum circled by 3 carinae, and with a soft round cover.

Ambulatory legs flat, 2nd pair the longest, 4th pair much slender in male.

Outer margin of the male first gonopod fringed with short plumose setae, both dorsal and ventral sides of distal end covered with thick thorn-like setae. Tip of it corneous and flat, bending slightly inwards.

Habitat Lives in burrows on sandy beaches or sandy parts of rocky shores.

Type locality Andaman Sea.

Distribution Tropical Indo-west Pacific from the South China Sea (China: Weizhou Island, Tonkin Gulf, Vietnam; Nhatrang Bay), western to the Andaman Sea, and further to northern Arabian Sea. The species is recorded from China for the first time.

2 *Asthenognathus hexagonum* Rathbun, 1909 (Fig. 2)

Asthenognathus hexagonum Rathbun, 1909: 111; 1910: 339, fig. 24, pl. 2 fig. 14. —Serène & Soh, 1976: 27, fig. 28C.

Material * NCOS 186B-23, 1 female (cl 8.4mm, cw 11.5mm). Northern South China Sea off Naozhou Island (20°45'N, 110°45'E), depth 26m, bottom muddy, 10 April 1960. J. Y. Liu collected.

Dagnosis Carapace hexagonal, 1.4 times as broad as long. Front marked with an obscure median groove. Mesogastric region with a pair of short transverse grooves, and a pair of U-shaped depressions below them. Lateral parts of intestinal region with a triangular dotted area (depression) close to posterior margin. Posterior margin of carapace subequal to fronto-orbital margin in width. 2 oblique granular carinae on postero-lateral margin.

Third maxilliped slender, ischium subequal to merus, suture between ischium and merus transverse. Dactylus of palp thin and slender, with long plumose setae.

Female chelipeds slender, fingers not gapped, propodus almost 3 times as long as broad. The second ambulatory legs are the longest and the fourth pair the shortest. Last three pairs of ambulatory legs with transverse rows of small pits, and covered with thick short setae.

Habitat Lives in muddy bottom, 12 to 26m deep.

Type locality Gulf of Thailand.

Distribution Tropical Western Pacific from the China coast, northern South China Sea, to Manila Bay and Gulf of Thailand. The species is recorded for the first time from the China seas.

3 *Asthenognathus inaequipes* Stimpson, 1858 (Fig. 3)

Asthenognathus inaequipes Stimpson, 1858: 107; 1907: 140, pl. 14, fig. 1. —Sakai, 1935: 206, fig. 110; 1939: 601, text-fig. 86a, b; 1976: 587. —Shen et Liu, 1963: 144.

* NCOS—National Comprehensive Oceanographic Survey, 1958—1960

Material examined:

Bohai Sea: 5 ♂♂ and 9 ♀♀. Depth 6—16m.

Yellow Sea, Jiaozhou Bay: 12 ♂♂, 27 ♀♀. Depth 0—50m.

East China Sea: 4 ♂♂, 1 ♀. Depth 6—26m.

This species resembles *Asthenognathus hexagonum* Rathbun, 1909, but differs from it in the following aspects:

<i>Asthenognathus hexagonum</i> Rathbun, 1909	<i>Asthenognathus inaequipes</i> Stimpson, 1858
Carapace hexagonal	carapace trapezoid
Carapace with paired U-shaped depressions and triangular dotted area on dorsal surface	With an obscure transverse groove only on dorsal surface
Carpace with posterior margin sub-equal to fronto-orbital margin in width	posterior margin 1.5 times as wide as fronto-orbital margin
Fingers of cheliped not gapped in female	fingers narrowly gapped in female (Fig. 3)

Distribution This species is a Sino-Japanese faunal element commonly found in shallow waters of the Bohai Sea, Yellow Sea and East China Sea; as well as the Pacific coast of Japan, but has never been found in the South China Sea.

Key words Genus *Asthenognathus*, Pinnotheridae, China Seas, New record