THE STATUS OF *SESARMA ANGUSTIPES* DANA, 1852, *S. TRAPEZIUM* DANA, 1852 AND *S. MIERSII* RATHBUN, 1897 (CRUSTACEA: DECAPODA: GRAPSIDAE) IN THE WESTERN ATLANTIC

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Errata: these errors were noted in the galleys but were not corrected by the printers.

p. 166, 2nd col., line 9 from bottom, change threre to there
p. 167, 1st col., line 7 from top, change Sesarme to Sesarma
p. 167, 1st col., line 18 from top, change atrributed to attributed
p. 167, 1st col., line 24 from bottom, change clear, to clear.
p. 167, 2nd col., line 1, change (Holotmetopus) to (Holometopus)
p. 168, 1st col., line 19 from top, change With his to With this

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THE STATUS OF *SESARMA ANGUSTIPES* DANA, 1852, *S. TRAPEZIUM* DANA, 1852 AND *S. MIERSII* RATHBUN, 1897 (CRUSTACEA: DECAPODA: GRAPSIDAE) IN THE WESTERN ATLANTIC[1]

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ABSTRACT: The taxonomic and nomenclatural status of five nominal species of the subfamily Sesarminae in the western Atlantic is reviewed. *Sesarma miersii* Rathbun, 1897 and *S. angustipes* Dana, 1852 are valid species, and *S. miersii iheringi* Rathbun, 1918 is a junior synonym of the latter. The status of *S. trapezium* Dana, 1852 is discussed.

INTRODUCTION

THE taxonomic status of a number of American species of the genus *Sesarma* is unclear. This is due primarily to the lack of available type or topotypic material. A secondary problem is the utilization of additional taxonomic characters (i.e., the gonopod) the value of which was not recognized by early workers. This report examines the taxonomic and nomenclatural status of five nominal species of the subfamily Sesarminae in the western Atlantic, and presents evidence for the use of an additional character of taxonomic value in the genus *Sesarma*. This character, the spination of the dactylus of the walking legs, was suggested to me by Mr. Henry Roberts, of the National Museum of Natural History, Washington, D.C. and I am deeply grateful for interest and assistance.

HISTORICAL RESUME

Dana (1852) in his report of the United States Exploring Expedition described and figured the two new species of *Sesarma, S. angustipes* and *S. trapezium*. Stimpson (1862) examined Dana's material and placed *S. trapezium* in the genus *Metasesarma* H. Milne Edwards, 1853. Kingsley (1880), Rathbun [1906; as *Sesarma (Holometopus) trapezium*], Tesch (1917) and Rathbun (1918; as *Sesarma trapezium)* all mentioned this species but only Dana and Stimpson had material available. The type

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localities of the two species were given as "South America" for *S. angustipes* and "Sandwich Islands" for *S. trapezium*.

Smith (1869) pointed out that there can be little doubt that Dana's material of *S. angustipes* was collected at Rio de Janeiro, Brazil. Cunningham (1871) referred a specimen from Rio de Janeiro to *S. angustipes*. Miers (1881) doubtfully referred a male specimen from Rat Island, Montevideo, Uruguay to *S. angustipes*. Miers examined Cunningham's specimen and concluded that his specimen and Cunningham's were identical. Miers was reluctant to positively refer his specimen to *S. angustipes* because he had received from the Smithsonian Institution material from Florida which had been identified as *S. angustipes* and his specimen was "certainly not identical" with those from Florida. Miers believed that the Florida material had been identified by Dr. Stimpson. He then (p. 70) stated "If the Florida species be not the true *S. angustipes*, Dana it may be designated *S. stimpsonii*." The specimens from Florida then became the type material of *S. stimpsonii* Miers, 1881. Miers later (1886: 270) stated in a footnote "I have proposed the name (Proc. Zool. Soc. Lond., p. 70, 1881) *Sesarma stimpsonii* as an alternative name for specimens [there is only a single specimen in the British Museum from this locality] from Monte Video." This, however, is incorrect as his earlier (1881) statement is quite clear as to which specimens the name *S. stimpsonii* referred. Rathbun (1897) also recognized that Miers (1881) intended the name *S. stimpsonii* for the specimens from Florida, and correctly determined that *Sesarma ricordi* H. Milne Edwards, 1853 and *S. stimpsonii* Miers, 1881 were synonymous. (She had examined the types of both species.)

In 1886 Miers referred a male specimen from "Bahia" (Salvador, Estado de Bahia, Brazil) to *Sesarma mülleri* A. Milne Edwards, 1869 (= *S. rectum* Randall, 1840). The specimen is figured on Plate 21, figure 3 of Miers and he pointed out some differences between this specimen and some others in the British Museum which had been identified as *S. mülleri*. Rathbun (1897) published a synopsis of the American species of *Sesarma* based on an examination of type specimens in European museums. She proposed (p. 90) the name *rubripes* as a new name for the specimen that Miers had erroneously referred to *S. mülleri* in 1886. It is quite clear from Miers' figure (pl. 21, fig. 3) that the specimen figured is the one known today as *Metasesarma rubripes* (Rathbun, 1897).

The status of *Sesarma miersii* Rathbun, 1897

In the same paper she seemed to propose the name *miersii* as a new name for the specimen that Miers had doubtfully referred to *S. angustipes* in 1881. On page 91 she gave further notes on *S. miersii* based on material from Abaco, Bahamas and then on page 92 stated "Rat Island, Montevideo type-locality (Brit. Mus.)". It seems clear that she intended the name *miersii* for the specimen from Montevideo for she clearly indicated so four times: (1) the key on p. 90; (2) the designation "*Sesarma (Holometopus) miersii* Rathbun, new name" on p. 91; the synonymy on p. 91; and (4) the distribution and type locality designation on p. 92. Chace and Hobbs (1969: 187) were also of this opinion as they stated "Unfortunately, Rathbun (1897) did not indicate why she doubted that the specimens from Montevideo tentatively determined by Miers as *S. angustipes* belonged to Dana's species and therefore required a new name." Later, however, Rathbun cited (1918: 303) Abaco, Bahamas as the type locality and stated in a footnote "On page 92, Proc. Biol. Soc. Washington, vol. 11, I indicated Rat Island as the type locality but the specimen threre described by me should be the type." This may be incorrect for the reasons given above.

Through the kindness of Mr. R. M. Ingle of the British Museum (Natural History) I was able to examine the specimen from Rat Island that Miers had, in 1881, doubtfully referred to *S. angustipes* Dana, 1852. There is a note in the vial which

reads "*Sesarma* sp. n. not angustipes Dana M. J. Rathbun, det." The specimen is a male, *cb* 15.8 mm, British Museum reg. no. 29-19 and is conspecific with the species known today as *Metasesarma rubripes* (Rathbun, 1897). The names *Sesarma rubripes* Rathbun, 1897 and *Sesarme miersii* Rathbun, 1897 could, on this evidence, be considered synonymous. However, there exists another interpretation of this problem which is more in the interest of nomenclatural stability. This was suggested by Dr. Lipke B. Holthuis and is adopted here. It is possible that Rathbun (1897: 92) when stating "Rat Island, Montevideo, type-locality (Brit. Museum)" was referring to the designation of Miers (1886: 270) when he erroneously atrributed the name *S. stimpsonii* Miers, 1881, to material from Montevideo. Under this interpretation two additional factors become clear, and offer further support for the above statement. The first is the synonymy of Rathbun (1918: 303) where she cited *Sesarma stimpsonii* Miers, 1886 (type locality, Monte Video; type in Brit. Museum) not *S. stimpsonii* Miers, 1881 as a synonym of *S. miersii* Rathbun, 1897. The footnote of Rathbun (1918: 303) referred to earlier and the reasons for it then become clear, Rathbun (1897) did not specifically select a type specimen in the original description of *S. miersii* and therefore under the International Code of Zoological Nomenclature (1964, article 73b) all of the specimens mentioned in the original description are syntypes. An examination of the syntypic material showed three species to be represented by the syntypes: *Metasesarma rubripes* (Rathbun, 1897), the specimen from Montevideo; *Sesarma angustipes* Dana, 1852, the specimens from Brazil; and a third species represented by the specimens from the Bahamas and Swan Island. This problem is solved by Rathbun's (1918: 303) selection of a male holotype (lectotype) (*cb* 21.1 mm; USNM 11372) and consequent restriction of the type locality to Abaco, Bahamas. This selection is in keeping with the historical and modern usage of the name *S. miersii* Rathbun, 1897. The citation of this species is the following.

Sesarma (Holotmetopus) miersii Rathbun, 1897

(Figs. 1 B,C; 2 B,C)

Sesarma (Holometopus) miersii Rathbun, 1897: 91. — Rathbun, 1918: 303, pl. 84 (not material from Brazil). — Chace and Hobbs, 1969: 180, figs. 59, 62q-i.

Material examined. — 1 male, 2 females; Key West, Florida; USNM 74536, 74554. — 9 males, 9 females; Great Abaco Island, Bahamas; USNM 11372 (lectotype and paralectotypes). — 1 male, 3 females; Swan Island, Caribbean Sea; USNM 14556. — 1 male, 4 females; San Salvador, Bahamas; USNM 11414. — 1 female; Isla de Pinos, Cuba; USNM 23815. — 1 male; Dominica, West Indies; USNM 126865.

Type locality. — Abaco Island, Bahamas.

Measurements. — Males, *cb* 11.2 to 21.1 mm; females *cb* 9.3 to 19.5 mm.

Distribution. — Key West, Florida; Bahamas; Cuba; Dominica; Swan Island.

Remarks. — The observation of Andrews (*in* Rathbun, 1918) on the life history of *S. miersii* in Jamaica probably refer to *S. roberti* (see Chace and Hobbs, 1969: 182) as *S. miersii* is not known from Jamaica.

The status of *Sesarma angustipes* Dana, 1852

In the collections of the National Museum of Natural History, Washington, D.C. there is a large amount of material identified as *Sesarma angustipes* Dana, 1852. Hartnoll (1965) examined some of this material and additional material from Jamaica and concluded that *Sesarma angustipes* Dana, 1852 was a senior synonym of *S. roberti* H. Milne Edwards, 1853. Chace and Hobbs (1969) disagreed with this and kept the two species distinct until specimens with the distinctive frontal and pleopodal characters of the Caribbean species are found on the eastern or southeastern coast of South America.

The pertinent parts of Dana's description are: frontal margin very slightly excavate at middle; carpus, hand and upper finger granulate, granules not serrate; hand entire above; eight posterior feet narrow, third joint three times as long as broad; tarsus elongate and spinulous. His figures show these characters. This description fits, in part, several species of *Sesarma* in the western Atlantic; notably *S. roberti, S. americanum* De Saussure, 1853, *S. ricordi* H. Milne Edwards, 1853 and *S. miersii iheringi* Rathbun, 1918. In their work on the West Indian decapods Chace and Hobbs (1969) established the identity of *S. tampicense* Rathbun, 1914 (a junior synonym of *S. americanum)* and presented diagnoses and illustrations of three of the above mentioned species. With his solid foundation it is possible to reexamine the status of *S. angustipes*. *Sesarma ricordi* and *S. roberti* are excluded because the first lacks granules on the hand and the granules of the second are serrate. *Sesarma americanum* is excluded because the dactylus, although there are a few spines present, cannot be considered spinulose. The species known today as *Sesarma miersii iheringi* seems to fit the description as well as possible and is the only species of the group which is known to occur in Brazil.

The citation for *Sesarma angustipes* Dana, 1852 should then be as follows.

Sesarma (Holometopus) angustipes Dana, 1852

(Figs. 1 A,D; 2 A,D)

Sesarma angustipes Dana, 1852: 353. — 1855, pl. 22, figs. 7a-c.

Sesarma (Holometopus) miersii iheringi Rathbun, 1918: 304, pl. 85.

Not *Sesarma (Holometopus) angustipes:* Rathbun, 1918: 311, pl. 90. — Hartnoll, 1965: 113, 115, 131-133, 144, 146, figs. 10B, 11B, D, 15A, B, table 6 [=*Sesarma roberti* H. Milne Edwards].

Material examined. — 3 males, 3 females; Trinidad; mouth of Salybea R.; Toco; under coconut husks; 23 July 1966; Coll. UWI No. 114; Miss J. M. Stanley; USNM 137890. — 1 female; Rio de Janeiro, Brazil; USNM 40822. — 1 female; Itaparica, Estado de Bahia, Brazil; USNM 40821. — 1 male; Cabedello, Brazil; USNM 25712. — 4 males, 3 females; Sao Paulo, Brazil; USNM 47830, 122789, 122790. — 1 male; Desterro, Brazil; USNM 20312. — 1 male; Salvador, Estado de Bahia, Brazil; USNM 48299 (type of *miersii iheringi).*

Type locality. — South America (Dana, 1852) probably near Rio de Janeiro, Brazil (Smith, 1869; Chace and Hobbs, 1969).

Measurements. — Males, *cb* 16.2 to 24 mm; females, 14.8 to 18 mm.

Distribution. — Trinidad; lower coast of Brazil.

Diagnosis. — Front widening distally; walking legs narrow, length of merus of third walking leg about three times width; dactylus of third walking leg armed ventrally and dorsally with strong, black spines (Fig. 1 A,D); apex of gonopod with endpiece subrectangular and curved distolaterally (Fig. 2 A,D); carpus and chela covered with depressed granules; movable finger of chela not greatly enlarged proximally.

Remarks. — It is not difficult to understand the confusion which has surrounded this species as it bears some resemblance to no less than five other species of the subgenus in the western Atlantic. Rathbun (1897, 1918) included material of this species in her discussion of *S. miersii* but did not include it in the description of *S. miersii.* Material of this species was listed under *S. ricordi* from Brazil but again the description did not seem to include *S. angustipes.* However, the diagnosis given will serve to separate this species from other species in the subgenus in the western Atlantic. In the largest male, *cb* 24 mm, the emargination of the front is more pronounced than in the smaller specimens. Some specimens also have the spination of the dactylus

more pronounced than is figured, the dorsal rows of spines being composed of more spines.

Discussion

This species seems to be closest to *S. miersii* with which, as already pointed out, it has been confused. The main difference between the two species are (1) the length of the merus of the third walking leg is about three times as wide in *S. angustipes* while the length is distinctly less than 3 times the width in *S. miersii;* (2) the dactylus of the third walking leg of *S. angustipes* is armed dorsally and ventrally with strong black spines (Fig. 1 A,D) while the dactylus of *S. miersii* is unarmed dorsally (Fig. 1 B,C) and (3) the gonopod of *S. angustipes* (Fig. 2 A,D) is more strongly curved than that of *S. miersii* (Fig. 2 B,C).

The status of *Sesarma trapezium* Dana, 1852

The possible identity of *Metasesarma trapezium* (Dana, 1852) should be considered for, as Rathbun (1918: 320) has already remarked in her discussion of *Metasesarma rubripes,* "This species bears suspicious resemblance to *Sesarma trapezium* Dana said to inhabit the Hawaiian Islands but not since found there." This is certainly true and, in fact, there does seem to be a single difference between the two species. It is further noteworthy that *Metasesarma trapezium* has not been found in the area of the stated type locality despite much collecting there during the last 100 years (Edmondson, 1959) while *M. rubripes* has been commonly found in an area which was visited by the United States Exploring Expedition where other material was collected (Rathbun, 1918; Boschi, 1964). Because of this threat to nomenclatural stability the International Commission on Zoological Nomenclature is being petitioned to suppress the name *Sesarma trapezium* Dana, 1852. At present, then, the citation of *Metasesarma rubripes* (Rathbun, 1897) should be as follows.

Metasesarma rubripes (Rathbun, 1897)

Sesarma angustipes?: Miers, 1881: 70 [not *S. angustipes* Dana].

Sesarma mulleri: Miers, 1886: 270, pl. 21, fig. 3 [not *S. mulleri* A. Milne Edwards, 1869 = *S. rectum* Randall, 1840].

Sesarma rubripes Rathbun, 1897: 90, line 11 (type locality Salvador, Estado da Bahia, Brazil.

Metasesarma rubripes: Rathbun, 1918: 319, pl. 94. — Chace and Hobbs, 1969: 175, figs. 56, 58e. — Boschi, 1964: 64, fig. 3b, pls. 15, fig. 2.

Distribution. — Greytown, Nicaragua to Argentina (Boschi, 1964).

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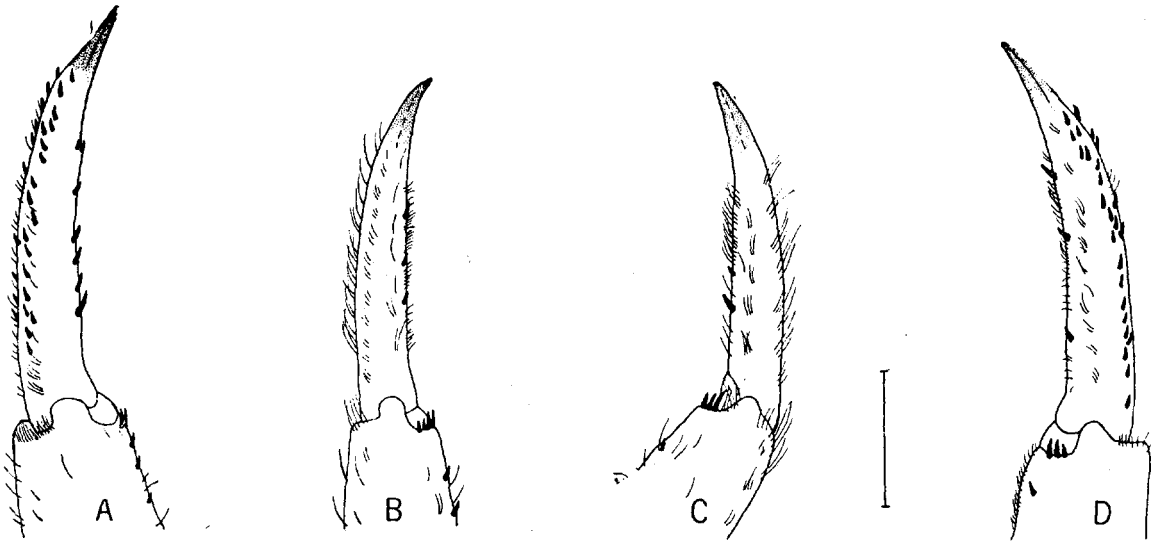

FIGURE 1: Dactylus of fifth pereiopod. A,D, *Sesarma angustipes* Dana, USNM 48299. B,C, *S. miersii* Rathbun, USNM 11372. Scale = 3 mm.

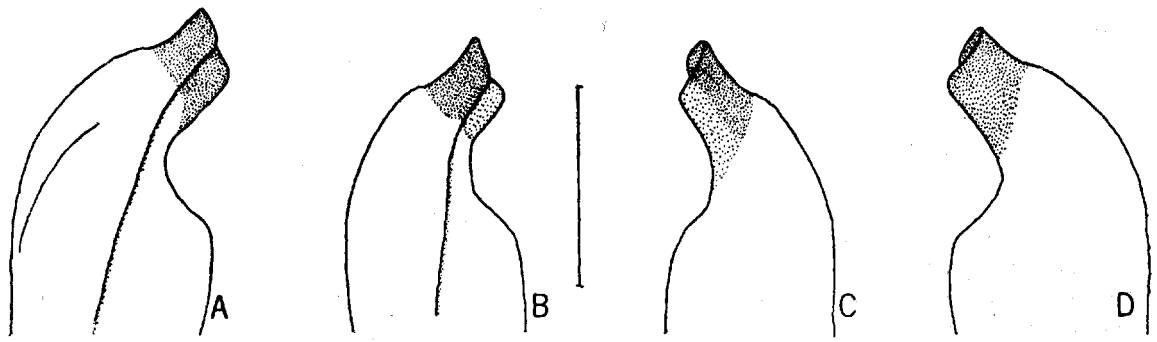

FIGURE 2: Apex of male gonopod. A,D, *Sesarma angustipes* Dana, USNM 48299. B,C, *S. miersii* Rathbun, USNM 11372. Scale = 1 mm.