

## Notes on some alpheid shrimps (Decapoda: Caridea) of *Thalassia testudinum* meadows, from the Central-Southern Mexican Caribbean

## Notas sobre algunos alfeidos (Decapoda: Caridea) de praderas de *Thalassia testudinum*, del Caribe Centro-Sur Mexicano

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### ABSTRACT

This study provides an account of some shrimps of the family Alpheidae collected on *Thalassia testudinum* meadows in Bahía de la Ascensión, Bahía del Espíritu Santo and Mahahual reef lagoon, Quintana Roo, on the Caribbean coast of Mexico. A total of 657 specimens of alpheid shrimps were collected; they represent two genera and seven species. *Alpheus* was the most diverse genus with five species. An updated geographic distribution is provided for all the seven species recorded; four of them represent new records for Bahía del Espíritu Santo and two for the Mahahual reef lagoon.

**Key words:** Alpheidae, Decapoda, Caridea, Mexican Caribbean.

### RESUMEN

Se presenta el listado de algunas especies de camarones de la familia Alpheidae recolectados en praderas de *Thalassia testudinum* en la Bahía de la Ascensión, la Bahía del Espíritu Santo y la laguna arrecifal de Mahahual, Quintana Roo, en la costa del Caribe mexicano. Se capturaron un total de 657 especímenes de camarones alfeidos que representan a dos géneros y siete especies. *Alpheus* fue el género más diverso, con cinco especies. Se proporciona la distribución geográfica actualizada de todas las especies registradas. Cuatro de ellas representan nuevos registros para la Bahía del Espíritu Santo y dos para la laguna arrecifal de Mahahual.

**Palabras clave:** Alpheidae, Decapoda, Caridea, Caribe mexicano.

## INTRODUCTION

Shrimps of the family Alpheidae, commonly known as snapping shrimps, are an abundant and ecologically diverse group of decapod crustaceans in most marine tropical and subtropical waters (Anker *et al.*, 2006a), but are also distributed in cool-temperate (e.g., Anker & Komai, 2004), freshwater (De Grave *et al.* 2008), and brackish water habitats, such as mangroves and estuaries (Christoffersen, 1984). Alpheidids are distributed from the intertidal down to about a 1000 m in depth (see Anker *et al.*, 2006a), but reach their greatest diversity in waters shallower than 50 m, particularly on coral reefs and adjacent habitats, e.g., sea-grass beds or sand flats with coral rubble. Many species are symbiotic with other organisms, such as sponges, anemones, cnidarians, mollusks, echinoderms, annelids, fishes, and other crustaceans (Kim & Abele, 1988; Anker *et al.*, 2006a).

Several studies on the caridean fauna including the snapping shrimps have been carried out in the Caribbean region, most of them focused on their taxonomic and zoogeographic aspects (e.g., Armstrong, 1949; Chace, 1972; Carvacho, 1979, 1982; Duffy, 1996; Martínez-Iglesias *et al.*, 1996, 1997; Vargas & Cortés, 1999; Anker, 2007; Anker *et al.*, 2006b; Ríos & Duffy, 2007; Macdonald *et al.*, 2009); however, studies for the Mexican Caribbean are rather scarce, with Chace (1972) being the main reference presenting extensive taxonomic information on this group for the tropical western Atlantic, including the Yucatán Peninsula. Other important contributions are by Markham and Donath-Hernández (1990) and Markham *et al.* (1990), who provided a synopsis of the shallow-water crustaceans of Quintana Roo, including several new records of alpheidids. Briones-Fourzán and Lozano-Álvarez (2002) reported some data about the alpheidids from Cozumel. The deep water caridean fauna was studied by Escobar-Briones and Villalobos-Hiriart (2003), who mentioned three new records of snapping shrimps from the coast of Quintana Roo.

During a study on the biology and ecology of bopyrid parasites of the caridean fauna based on recent field work in the Bahía de la Ascensión, Bahía del Espíritu Santo and the Mahahual reef lagoon, alpheid shrimps were collected by trawling on turtle-grass (*Thalassia testudinum* Banks ex König) meadows. In the present paper those shrimps are listed and some notes about them are provided.

## MATERIAL AND METHODS

Field work was conducted at five stations in the Bahía de la Ascensión (19°30'–19°50' N, 87°25'–87°50' W), five in Bahía del Espíritu Santo (19°12'–19°25' N, 87°41'–88°47' W), and one in Mahahual reef lagoon (18°42.88' N, 87°42.44' W) along the central-southern coast of Quintana Roo, Mexico (Fig. 1), during July 1997, May and November 2001, May 2002, and January 2003. All specimens were collected with a Colman-Seagrave sledge net with a mesh size of

800 µm in meadows of turtle-grass (*T. testudinum*) at a depth range of 0.4–1.0 m. Immediately after sampling, all the specimens were fixed in 10% formaldehyde and then transferred to 70% ethanol. The bottom was sand-mud with fragments of shells at Bahía de la Ascensión and Bahía del Espíritu Santo and sand in the Mahahual reef lagoon. Additional metadata (currents, temperature, salinity, sediment type, and vegetation) of these study areas can be found in Merino Ibarra (1986), Jordán-Dahlgren *et al.* (1994), Castellanos Osorio and Suárez-Morales (1997) and Suárez-Morales & Rivera-Arriaga (1998).

The species treated here were arranged alphabetically; synonymies, material examined, geographic ranges, ecological notes, as well as new local records in the Mexican Caribbean are provided for each species. All specimens are deposited in the collection at the authors laboratory, in the Universidad Nacional Autónoma de México (UNAM).

## RESULTS

A total of 657 specimens from two genera and seven species were collected during the surveyed period. The genus *Alpheus* Fabricius, 1798 was the most diverse, with five species. Four species represent new records for the Bahía del Espíritu Santo, while two species are new records for Mahahual reef lagoon.

Order Decapoda Latreille, 1802

Infraorder Caridea Dana, 1852

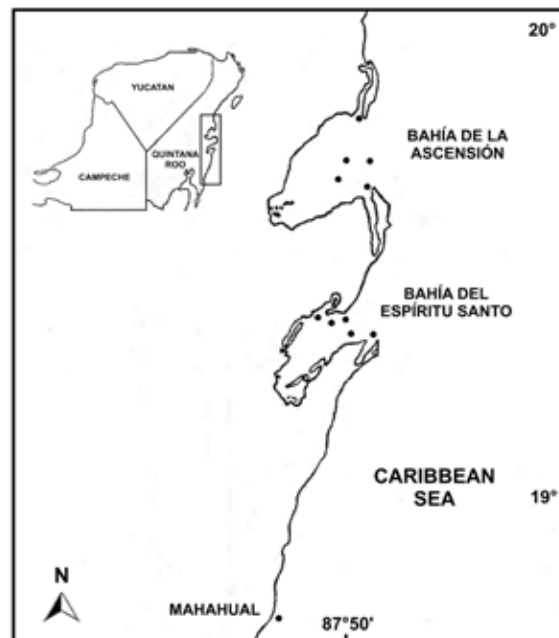


Figure 1. Central-southern coast of Quintana Roo, Mexico showing sites sampled (in black dots) (modified from Román-Contreras & Martínez-Mayén, 2010).

Superfamily Alpheoidea Rafinesque, 1815

Family Alpheidae Rafinesque, 1815

***Alpheus* cf. *armillatus* H. Milne-Edwards, 1837**

*Alpheus armillatus*. Chace, 1972: 62; Felder & Chaney, 1979: 25; Markham & McDermott, 1980: 1270; Rodríguez, 1980: 142, fig. 40 h-k; Williams, 1984: 92, fig. 63; Martínez-Iglesias, 1986: 8, fig. 3C; Markham *et al.*, 1990: 420; Martínez-Guzmán & Hernández-Aguilera, 1993: 614; Hernández-Aguilera *et al.*, 1996: 28; Martínez-Iglesias *et al.*, 1997: 403, fig. 4; Christoffersen, 1998: 356; Briones-Fourzán & Lozano-Álvarez, 2002: 200; McClure, 2005: 129, fig. 6; Mossolin *et al.*, 2006: 48.

*Alpheus* cf. *armillatus*. Almeida *et al.*, 2007: 11.

*Crangon armillatus*. Schmitt, 1935: 142.

Material examined: Bahía del Espíritu Santo, 2 specimens, November 2001.

Distribution: North Carolina (Williams, 1984) to nearby Port Aransas, Texas (Felder & Chaney, 1979); from Isla Lobos, Veracruz (Hernández-Aguilera *et al.*, 1996) and Isla Pérez, Arrecife Alacrán, Yucatán, Gulf of Mexico (Martínez-Guzmán & Hernández-Aguilera, 1993), Isla Cozumel, Quintana Roo (Chace, 1972; Briones-Fourzán & Lozano-Álvarez, 2002), south to Santa Catarina, Brazil (Christoffersen, 1998); West Indies from Bermuda (Markham & McDermott, 1980) to Tobago (Chace, 1972).

Ecological notes: Under rocks and shells between interstices of coral (Chace, 1972); in sponges (Markham *et al.*, 1990), and turtle-grass (McClure, 2005). Shallow-water to 14 m (Felder & Chaney, 1979), on calcareous bottom covered with *T. testudinum*, depth 0.5 m (present study).

Local new records: Bahía del Espíritu Santo, Quintana Roo.

Remarks: The material examined fits well with Chace's (1972) key, and the figures and keys presented by Martínez-Iglesias *et al.* (1997) and McClure (2005) for the species. *Alpheus armillatus* is a large species complex that includes many cryptic species (Mathews & Anker, 2009). Those authors, based on molecular analyses of this species complex from the Caribbean Sea, Gulf of Mexico, Florida, Brazil, and the tropical eastern Pacific, reported the presence of six clades broadly overlapped in their geographic distribution, including 11 lineages in the western Atlantic and eight in the eastern Pacific, for a total number of at least 19 putative species contained in the *A. armillatus* species complex.

***Alpheus bouvieri* A. Milne-Edwards, 1878**

*Alpheus Edwarsii*. Dana, 1852: 542 [not Audouin, 1826].

*Alpheus bouvieri*. Christoffersen, 1979: 303, figs. 2-5; Mark-

ham & McDermott, 1980: 1270; Abele & Kim, 1986: 18, 199, 214-215, figs. a-d; Markham *et al.*, 1990: 421; Manning & Chace, 1990: 14; Hernández-Aguilera *et al.*, 1996: 30; Martínez-Iglesias *et al.*, 1996: 33; Martínez-Iglesias *et al.*, 1997: 404, fig. 6; McClure, 2005: 133 (part., not Fig. 8; see Anker *et al.*, 2009).

Not *A. bouvieri*. Christoffersen, 1979: 303 (part., material from eastern Pacific; see Anker *et al.*, 2009); Kim & Abele, 1988: 58, fig. 24 (see Williams *et al.*, 2001 and Anker *et al.*, 2009).

Material examined: Bahía de la Ascensión, one specimen, May 2002.

Distribution: Eastern and southern Florida (Abele & Kim, 1986); Gulf of Mexico: Veracruz and Campeche (Hernández-Aguilera *et al.*, 1996), Punta Xamach, Bahía de la Ascensión, Quintana Roo, Mexico (Markham *et al.*, 1990); Bermuda (Markham & McDermott, 1980) and Cuba (Martínez-Iglesias *et al.*, 1996) to Trinidad (Christoffersen, 1979); south to Torres, Rio Grande do Sul, Brazil (Christoffersen, 1979); eastern Atlantic from Cape Verde Islands and Senegal to Ilha de Sao Tomé and Congo (Christoffersen, 1979); south Atlantic: Ascension Island (Manning & Chace, 1990).

Ecological notes: Among rocks, dead coral, sometimes in sponges (Christoffersen, 1979), on zoanths and coralline algae (Anker *et al.*, 2009). Shallow subtidal to about 10 m depth (Anker *et al.*, 2009), in beds of *T. testudinum* on sand, depth 0.6 m (present study).

Remarks: The specimen examined agrees in general with Chace's (1972) key, and the description and figures by Christoffersen (1979) and Anker *et al.* (2009) for *A. bouvieri*. This species was reported previously from the eastern Pacific and the Atlantic by Kim and Abele (1988). Anker *et al.* (2009) reviewed the *Alpheus bouvieri* species complex and restricted *A. bouvieri* to the Atlantic, while the eastern Pacific populations were assigned to *Alpheus javieri* Anker, Hurt and Knowlton, 2009. This species is genetically distinct and with little differences in morphology and color pattern respect to *A. bouvieri*, such as a slightly narrower and deeper dorsal groove on the palm of the major chela, and the slightly shorter first carpal segment of the second pereopod, as well as tan or brown-colored spines on the propodus of third and fourth pereopods, whereas in *A. bouvieri* such spines do not bear traces of color (Anker *et al.*, 2009).

A recently described species that could be confused with *A. bouvieri* in the western Atlantic is *A. agilis* Anker, Hurt & Knowlton, 2009, which is distributed only in Brazil and West Africa, distinguished from *A. bouvieri* by the presence of a spine on ischium of the third and fourth pereopods (see Anker *et al.*, 2009).

***Alpheus* cf. *floridanus* Kingsley, 1878**

*Alpheus floridanus*. Chace, 1972: 65, figs. 17-20 (part.); Herbst *et al.*, 1978: 991; Christoffersen, 1979: 311, figs. 6-8; Markham &

McDermott, 1980: 1270; Rodríguez, 1980: 144, fig. 41a-d; Martínez-Iglesias *et al.*, 1997: 423, fig. 11; Christoffersen, 1998: 358; Escobar-Briones & Villalobos-Hiriart, 2003: 108; McClure, 2005: 139 (part, not fig. 13).

*Alpheus cf. floridanus*. Almeida *et al.*, 2007: 12.

*Crangon floridanus*. Schmitt, 1935: 144; Pearse, 1950: 150.

Material examined: Bahía de la Ascensión, 9 specimens, May 2002; 1 specimen, January 2003. Bahía del Espíritu Santo, 1 specimen, May 2001. Mahahual reef lagoon, 19 specimens, July 1997.

Distribution: Western Atlantic from southeast of Cape Hatteras (35°01.5'N, 75°30.8'W), North Carolina (Herbst *et al.*, 1978); Bermuda (Markham & McDermott, 1980); Dry Tortugas, Florida throughout the Gulf of Mexico (Christoffersen, 1979, 1998); West Indies from Bahamas to Curaçao and Bonaire (Christoffersen, 1979); Mexico: Bahía de la Ascensión, Quintana Roo (Chace, 1972) and north of Mahahual (Escobar-Briones & Villalobos-Hiriart, 2003); south to Rio Grande do Sul, Brazil (Christoffersen, 1998). Actually the records of *A. floridanus* from the eastern Atlantic and eastern Pacific refer to closely related species (Anker, 2001; Williams *et al.*, 2001; Almeida *et al.*, 2007).

Ecological notes: Bottoms with calcareous algae, among hydrozoans and bryozoans (Christoffersen, 1979); in soft muddy sediments in mangroves, estuaries and coastal lagoons (Christoffersen, 1979, Martínez-Iglesias *et al.*, 1997). Shallow-water to 240 m (Escobar-Briones & Villalobos-Hiriart, 2003), on sand and mud bottoms with *Thalassia*, 0.5-1 m depth (present study).

Local new records: Bahía del Espíritu Santo, Quintana Roo.

Remarks: *Alpheus floridanus* form also a species complex, with four species in the western and eastern Atlantic and eastern Pacific (see Anker, 2001; Almeida *et al.*, 2007). On the basis of a phylogenetic analysis, Bracken *et al.* (2007) mentioned the existence of at least five different species within this complex when populations of the eastern Pacific, western Atlantic and Gulf of Mexico were compared.

### ***Alpheus cf. packardii* Kingsley, 1880**

*Alpheus packardii*. De Grave *et al.*, 2006: 1421-1422.

*Crangon packardii*. Schmitt, 1935: 144.

*Alpheus normanni* Kingsley 1878 . Chace, 1972: 68; Christoffersen, 1979: 322; Williams, 1984: 97, fig. 66; Bauer, 1985: 152; Martínez-Guzmán & Hernández-Aguilera, 1993: 615; Martínez-Iglesias *et al.*, 1997: 424, fig. 13; Christoffersen, 1998: 359; Briones-Fourzán & Lozano-Álvarez, 2002: 200; McClure, 2005: 145, fig. 17, pl. 3, fig. A.

Material examined: Bahía de la Ascensión, 40 specimens, May 2002; 1 specimen, January 2003. Bahía del Espíritu Santo, 3

specimens, May 2001. Mahahual reef lagoon, 573 specimens, July 1997.

Distribution: Listed as *A. normanni* from Bermuda; around Cape Charles, Virginia (Williams, 1984) to Key West Florida and Texas (Christoffersen, 1979); throughout the Gulf of Mexico to Isla Pérez, Arrecife Alacrán, Yucatán (Martínez-Guzmán & Hernández-Aguilera, 1993); Isla Cozumel and Bahía de la Ascensión, Quintana Roo (Chace, 1972; Briones-Fourzán & Lozano-Álvarez, 2002); to São Paulo, Brazil (Christoffersen, 1998); West Indies from Bahamas (Christoffersen, 1979) to Tobago (Chace, 1972).

Ecological notes: Among coral reefs (Chace, 1972), on sand, mud, broken shells, algae and sponges (Christoffersen, 1979) and meadows of *T. testudinum* (Bauer, 1985). Subtidal to 73 m (Chace, 1972), collected on sand bottom covered with *T. testudinum*, depth 0.5-1 m (present study).

Local new records: Bahía del Espíritu Santo and Mahahual reef lagoon, Quintana Roo.

Remarks: *Alpheus packardii* form also is a species complex, with at least three probable cryptic species in the western Atlantic, and two in the eastern Pacific (Almeida *et al.*, 2007). Chace (1937) considered the eastern Pacific species *A. normanni* and the western Atlantic *A. packardii* as synonyms. Kim and Abele (1988) compared specimens of *A. normanni* from the eastern Pacific with material from Florida and find that the male specimens from the eastern Pacific presented the minor chela of the first pereopods more elongated than the minor chela of male specimens from Florida; therefore, the eastern Pacific form was considered by those authors as a different species from the Atlantic form and, according to Christoffersen (1998) the western Atlantic specimens previously named as *A. normanni* must be attributed to *A. packardii*. The minor chela of 50 males examined in the present study ranges from 3.64 to 4.38 times as long as broad, compared to 5.8 reported by Kim & Abele (1988) for *A. normanni* from the eastern Pacific, so, we concluded that the specimens examined belong to the *A. packardii* species complex.

### ***Alpheus viridari* (Armstrong, 1949)**

*Crangon viridari*. Armstrong, 1949: 8-12, fig. 2.

*Alpheus viridari*. Chace, 1972: 73; Carvacho, 1979: 455; Markham & McDermott, 1980: 1270; Martínez-Iglesias *et al.*, 1997: 424, fig. 17; Alvarez-León, 2003: 265; McClure, 2005: 155, fig. 23; Hernández-Ávila *et al.*, 2007: 37.

Material examined: Bahía de la Ascensión, 1 specimen, May 2002. Mahahual reef lagoon, 4 specimens, July 1997.

Distribution: Western Atlantic: Bermuda (Markham & McDermott, 1980); Florida Keys to Trinidad and Curaçao (Chace, 1972); Isla Cozumel and Bahía de la Ascensión, Quintana Roo, Mexico

(Chace, 1972); South Lagoon of Chengue, Tayrona, Colombia (Álvarez-León, 2003); Isla Cubagua, Venezuela (Hernández-Ávila *et al.*, 2007).

Ecological notes: In dead coral (Chace, 1972), among mangrove roots (Martínez-Iglesias *et al.*, 1997), muddy-sand bottom with meadows of *Halodule wrightii* (Ascherson), *Halophila baillo-nis* Ascherson ex Dickie; also reported on meadows of *T. testudinum* (see Álvarez-León, 2003). Intertidal to 20 m (Martínez-Iglesias *et al.*, 1996), sand substrate with *Thalassia*, depth around 0.5 m (present study).

Local new records: Mahahual reef lagoon, Quintana Roo.

### ***Synalpheus apioceros* Coutière, 1909**

*Synalpheus apioceros*. Coutière, 1909: 27, fig. 9; Chace, 1972: 86; Carvacho, 1979: 463; Felder & Chaney, 1979: 25; Rodríguez, 1980: 155; Abele & Kim, 1986: 19, 226-227, figs. i-k; Christoffersen, 1998: 362; Markham *et al.*, 1990: 421; Wicksten, 2005: 32.

*Synalpheus* cf. *apioceros*. Almeida *et al.*, 2007: 14.

Material examined: Bahía del Espíritu Santo, one specimen, May 2001.

Distribution: Southern Florida (Chace, 1972); Stetson and West Flower Garden Bank (Wicksten, 2005); Seven and One-half Fathom Reef, Texas (Felder & Chaney, 1979); Isla Cozumel and Cayo Culebras, Bahía de la Ascensión, Quintana Roo, Mexico (Chace, 1972); the Antilles, from Anegada Island to Tobago (Chace, 1972); to Santa Catarina, Brazil (Christoffersen, 1998).

Ecological notes: Rubble fields near sea grass beds and mangroves (Carvacho, 1979); eroded rocks, mollusk shells, cavities of sponges and tubes of polychaetes in 10-12 m (Felder & Chaney, 1979), sand and rocky substrate with *T. testudinum*, depth less than 1 m (present study).

Local new record: Bahía del Espíritu Santo, Quintana Roo.

Remarks: The morphology of the specimen examined agrees well with the description and figures provided by Coutière (1909), and Abele & Kim's (1986) key and illustrations to *S. apioceros*. Almeida *et al.* (2007) stated that *S. apioceros* is a species complex with at least two species in the western Atlantic.

### ***Synalpheus fritzmülleri* Coutière, 1909**

*Synalpheus fritzmülleri*. Coutière, 1909: 35-37, fig. 18.

*Synalpheus fritzmülleri*. Chace, 1972: 92; Christoffersen, 1979: 341; Felder & Chaney, 1979: 25; Markham & McDermott, 1980: 1270; Williams, 1984: 102, fig. 70; Manning & Chace, 1990: 22; Markham *et al.*, 1990: 422; Hernández Aguilera *et al.*, 1996: 36; Martínez-Iglesias *et al.*, 1996: 35; Christoffersen, 1998: 362; Mc-

Clure, 2005: 175, fig. 38; Wicksten, 2005: 32; Hermoso-Salazar & Solís-Weiss, 2010: 65-68.

*Synalpheus* cf. *fritzmülleri*. Almeida *et al.*, 2007: 14.

Material examined: Bahía de la Ascensión, one specimen, January 2003.

Distribution: Bermuda (Markham & McDermott, 1980); off Cape Hatteras, North Carolina; west coast of Florida (Christoffersen, 1979); East Flower Garden Bank (Wicksten, 2005) and Seven and One-Half Fathom Reef, Texas (Felder & Chaney, 1979) to Isla Pérez, Alacrán Reef, Yucatán, Mexico (Hernández Aguilera *et al.*, 1996); Puerto Morelos and Punta Xamach (Markham *et al.*, 1990), Isla Cozumel, Bahía de la Ascensión and Bahía del Espíritu Santo, Quintana Roo, Mexico (Chace, 1972); Cuba (Martínez-Iglesias *et al.*, 1996) to Tobago (Chace, 1972); south to Santa Catarina, Brazil (Christoffersen, 1998); also in South Atlantic: Saint Helena (Christoffersen, 1979) and Ascension Island (Manning & Chace, 1990).

Ecological notes: Sea grass flats with corals, *Porites* Link, 1807, eroded coral, among roots of mangroves (Chace, 1972) and sponges (Markham *et al.*, 1990); intertidal to 75 m (Christoffersen, 1979), among *T. testudinum* and sand bottom, depth 0.5 m (present study).

Remarks: Previous records of *S. fritzmülleri* from Tres Marias Archipelago (Isla María Madre) in the eastern Pacific actually belong to *Synalpheus nobilii* Coutière, 1909; therefore, according to Hermoso-Salazar and Solís-Weiss (2010), *A. fritzmülleri* must be removed of the list from the eastern Pacific alpheid.

## **DISCUSSION**

As this study was limited to dredging in *T. testudinum* meadows, it is difficult to compare our results with other studies carried out in the Mexican Caribbean (Chace, 1972; Markham *et al.*, 1990; Briones-Fourzán & Lozano-Álvarez, 2002; Escobar-Briones & Villalobos-Hiriart, 2003) as they used various collection methods (i.e., by hand, corers, dredges, snorkeling and scuba diving) and sampled different habitats in their study area.

The species recorded belong to the genera *Alpheus* and *Synalpheus*, both highly diverse and known to contain cryptic species that are difficult to distinguish based on morphologic characters (see Knowlton, 1986 for a review of cryptic species; Knowlton, 1993; Mathews & Anker, 2009). Hence, it is required to consider other data such as colour patterns (Knowlton, 1986; Knowlton & Mills, 1992; Anker, 2001) and the ecology and genetics of the species (Knowlton, 1993; Williams *et al.*, 2001; Anker *et al.*, 2009; Mathews & Anker, 2009). According to Anker (2001), with the incorporation of those data to the taxonomy, many species of alpheid formerly considered as widely distributed, have been recognized as species complexes.

Of the species here treated, *A. cf. armillatus*, *A. bouvieri*, *A. cf. floridanus*, *A. cf. packardii*, and *S. apioceros* are currently recognized as part of species complexes (Almeida *et al.*, 2007). Only the *A. bouvieri* species complex has been solved (Anker *et al.*, 2009); the taxonomic review of the other mentioned complexes is also urgent (see Anker *et al.*, 2007). On the other hand, *S. fritzmulleri* is considered as a possible species complex (Almeida *et al.*, 2007), whereas *A. viridari* may be a sister clade of the *A. armillatus* complex (Mathews & Anker, 2009).

The occurrence of snapping shrimps in our samples is explained by the proximity to reefs in the studied areas, since many associated reef-species of crustaceans utilize the surrounding seagrass to live (Heck, 1977). The capture of species associated with other organisms such as *S. fritzmulleri* (reported from sponges and among ascidians and gorgonians, see Heck, 1977; Christoffersen, 1979; Markham *et al.*, 1990) may be attributed to the collecting activities that detached these shrimps from their hosts.

The species recorded herein are restricted to tropical and subtropical waters (Christoffersen, 1982; Manning & Chace, 1990; Markham *et al.*, 1990) and according to previous geographic records, all those species are distributed in the western Atlantic, although *A. bouvieri* and *S. fritzmulleri* also occur in the eastern Atlantic. At present, a detailed analysis of the distributional patterns in marine zoogeographic provinces of the species collected is not possible, as most belong to species complexes (Anker, 2001; Almeida *et al.*, 2007), and further changes are expected in their nomenclatural status and geographical distribution (Anker *et al.*, 2007). Therefore, a review of the alpheid cryptic fauna from the Mexican coasts using the multidisciplinary approaches mentioned is recommended in order to determine the taxonomic status of the species herein reported.

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