



Research note

First record of *Ambidexter symmetricus* (Decapoda: Caridea: Processidae) from the Yucatán Peninsula

Primer registro de Ambidexter symmetricus (Decapoda: Caridea: Processidae) en la península de Yucatán

Luis Daniel Santana-Moreno^a, Ramón Isaac Rojas-González^{a,*}, Armando T. Wakida-Kusunoki^b

^a Centro Regional de Investigación Pesquera de Lerma, Instituto Nacional de Pesca, Carretera Campeche – Lerma Km 5, 24500 Campeche, Campeche, Mexico

^b Centro Regional de Investigación Pesquera de Yucalpetén, Instituto Nacional de Pesca, Boulevard del Pescador, esquina Antigua carretera a Chelem, Puerto de Abrigo, 97320 Yucalpetén, Yucatán

Received 17 September 2015; accepted 6 April 2016

Available online 25 August 2016

Abstract

The first record of *Ambidexter symmetricus* from the Yucatán Peninsula is herein reported; extending the geographic range of the species to the southeastern Gulf of Mexico. During monthly visits to Seybaplaya, Campeche in 2014, a total of 13 specimens were collected from May to November; 1 specimen was male and the rest were ovigerous females, suggesting that this species has a continuous reproduction.

All Rights Reserved © 2016 Universidad Nacional Autónoma de México, Instituto de Biología. This is an open access item distributed under the Creative Commons CC License BY-NC-ND 4.0.

Keywords: Geographical distribution; Campeche; Southeastern Gulf of Mexico

Resumen

Se presenta el primer registro de *Ambidexter symmetricus* para la península de Yucatán. Con este registro se extiende la distribución geográfica conocida de esta especie al sureste del golfo de México. En visitas mensuales de mayo a noviembre del año ***2014 a Seybaplaya, Campeche, se recolectaron 13 ejemplares de esta especie; 1 ejemplar macho y el resto hembras ovígeras, lo que muestra*** que esta especie presenta una reproducción continua.

Derechos Reservados © 2016 Universidad Nacional Autónoma de México, Instituto de Biología. Este es un artículo de acceso abierto distribuido bajo los términos de la Licencia Creative Commons CC BY-NC-ND 4.0.

Palabras clave: Distribución geográfica; Campeche; Sureste del golfo de México

Processidae, currently has 6 known genera and 69 recognized species, consists of small shrimp, which are mostly nocturnal and inhabit a wide variety of substrates such as sandy flat bottoms, sharing burrows with other invertebrates such as annelid worms and other crustaceans (Levitt, De Grave, & Shenkar, 2014). They are particularly abundant in shallow waters with sea grass and coral rubble as dominant substrates (Manning, 1992; Manning & Chace, 1971). The genus *Ambidexter* Manning &

Chace, 1971, composed of only 3 species, is distributed in the western Atlantic Ocean and central Pacific Ocean (Abele, 1972), with 1 report in the Gulf of California (Ríos & Carvacho, 1982). There are only 3 previous reports of the presence of *A. symmetricus* Manning & Chace, 1971 in Mexico, 2 on the Atlantic coast: Manning and Chace (1971) reported their presence in Tamaulipas, and Álvarez, Villalobos, Rojas, and Robles (1999) suggested their presence in Veracruz; and 1 on the Pacific coast: Ríos and Carvacho (1982) report the presence of this species in the Gulf of California.

With the aim of studying the abundance of juveniles of the pink shrimp *Farfantepenaeus duorarum* in the communities of Seybaplaya, Champotón and Isla Arena, in the state of

* Corresponding author.

E-mail address: ramon.rojas@inapesca.gob.mx (R.I. Rojas-González).

Peer Review under the responsibility of Universidad Nacional Autónoma de México.

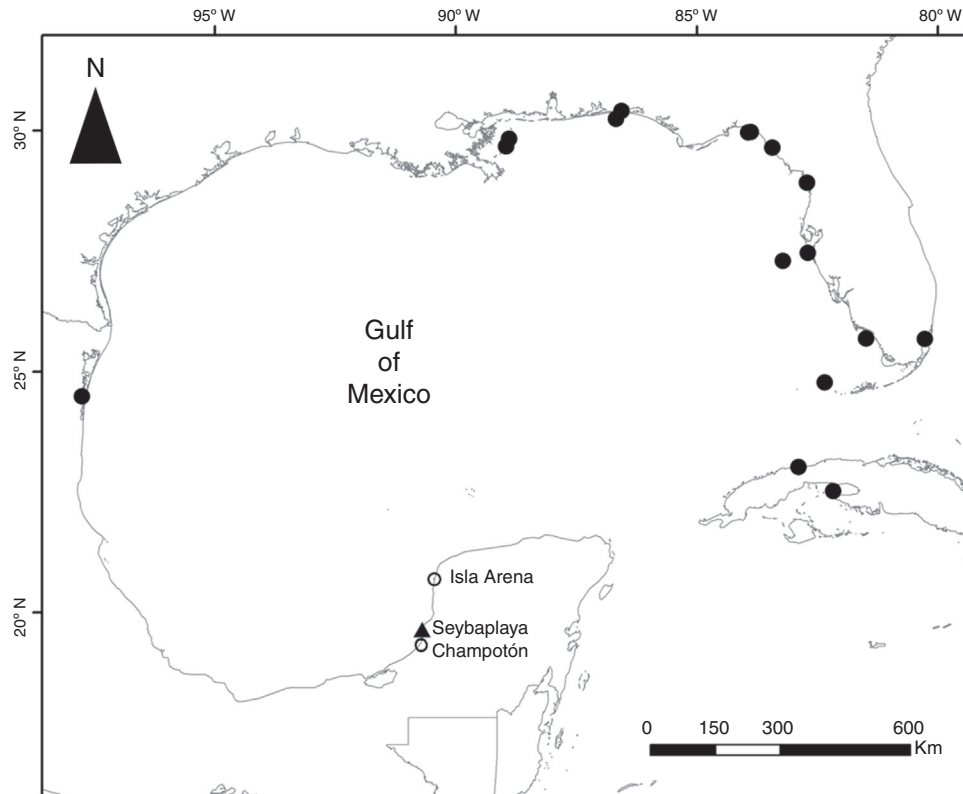


Figure 1. Distribution map of *Ambidexter symmetricus* in the Gulf of Mexico, previous records (black circles; based on literature and biodiversity databases: GBIF, 2015; OBIS, 2015), new record (dark triangle) and locations where monitoring was performed (open circles).

Campeche, Mexico (Fig. 1), from May to November 2014, on 1 night per month and during the new moon, we conducted 50 m transects with an artisan net used for fishing pink shrimp juveniles consisting of a triangle that carries a trawl net with a mesh aperture of 0.6 cm.

All captured shrimp were fixed in 70% alcohol, deposited in plastic bags and transported back to the laboratory. The taxonomic determination was based on the keys of Abele (1972). We measured their post-orbital carapace length (POCL) with a digital caliper (± 1 mm) and determined their sex by the presence or absence of the appendix masculina, and in the case of females, whether they were ovigerous. We took pictures of live specimens to record color patterns. The specimens collected were deposited in the Crustacean Collection of the Unidad Académica Sisal of the Universidad Nacional Autónoma de México.

In the 7 months of surveys we collected 13 specimens of *Ambidexter symmetricus* at the Seybaplaya location ($19^{\circ}38'50.58''$ N, $90^{\circ}41'53.16''$ W) (Fig. 1). On May 27, 2014, we found 4 ovigerous females (YUC-CC-255-11-001726); on June 25, 2 ovigerous females (YUC-CC-255-11-001727); on July 24, 1 male and 1 ovigerous female (YUC-CC-255-11-001728); and on November 20, 5 ovigerous females (YUC-CC-255-11-001729). The specimens were collected at night at an average depth of 1 m on a substrate consisting of sea grass and muddy seabed, with POCL ranging from 4.0 to 6.3 mm. The 12 ovigerous females found from May to November indicate that *A. symmetricus* continuously bred during this period.

Taxonomic identification of these specimens was based on the presence of chela on the first pair of pereopods and a stylocerite without a lateral spinule, which is considered the principal diagnostic characteristic for this species. Further characteristics were compared to the original description of the species, such as bifid tip of rostrum, presence of antennal spine, symmetrical second pereopods, number of articles on carpus of second pereopod (9 articles in 7 specimens, 10 articles in 6 specimens), fifth abdominal somite not armed, nor the other abdominal somites (Abele, 1972; Manning & Chace, 1971). Manning and Chace (1971) described the color pattern of this species as light-cream, white, or colorless background with the chromatophores arranged in a band across the anterior portion of the abdomen with color also concentrated on pleura and appendages (there are no published pictures of living specimens in the literature). We found that all collected specimens of *A. symmetricus* exhibited the same color pattern, consisting of a translucent white with a red belt across the anterior portion of abdomen (Fig. 2).

Specimens of *A. symmetricus* were found at Seybaplaya; no specimens were found at Champotón despite their proximity and environmental similarity; nor were specimens found in the northern location of Isla Arena. The absence of *A. symmetricus* in these locations is not conclusive; it is necessary to perform specific monitoring to search for *A. symmetricus* in these 2 locations. The finding of this shrimp in Seybaplaya, extends the known distribution area of this species about 915 km south into the Gulf of Mexico, from its nearest report in Tamaulipas (Manning & Chace, 1971). This is the first report of this species in the



Figure 2. Lateral and dorsal views of adult female of *Ambydexter symmetricus* Manning & Chace, 1971 from Seybaplaya, Campeche, Mexico.

Yucatán Peninsula and an addition to the 35 species of caridean shrimp reported for Campeche (Hernández-Aguilera, Gracia, & Illescas, 2010). Álvarez et al. (1999) assumed the presence of this species on the coast of Veracruz, and considering the present report we infer the possible presence of *A. symmetricus* in the entire Gulf of Mexico.

We are grateful to the technicians from the Centro Regional de Investigación Pesquera- Lerma, to the fishermen from the visited communities for in-field support, to Diana Ugalde-García for reviewing and giving us information about specimens, and to Sammy De Grave for his valuable English revision and corrections on manuscript. We also appreciate the comments of Alejandro M. Maeda Martínez and an anonymous reviewer for their valuable suggestions. This paper was financed by the Instituto Nacional de Pesca through the Project Análisis

y seguimiento del recurso camarón rosado (*Farfantepenaeus duorarum*) en la sonda de Campeche.

References

- Abele, L. G. (1972). A review of the genus *Ambidexter* (Crustacea: Decapoda: Processidae) in Panama. *Bulletin of Marine Science*, 22, 365–380.
- Álvarez, F., Villalobos, J. L., Rojas, Y., & Robles, R. (1999). Listas y comentarios sobre los crustáceos decápodos de Veracruz, México. *Anales del Instituto de Biología, Serie Zoológica, Universidad Nacional Autónoma de México*, 70, 1–27.
- GBIF (The Global Biodiversity Information Facility). (2015). Search occurrences of *Ambidexter symmetricus*, Manning and Chace, 1971. The Global Biodiversity Information Facility. Retrieved on August 20th, 2015 from: <http://www.gbif.org>
- Hernández-Aguilera, J. L., Gracia, A., & Illescas, C. (2010). Macrocrustáceos acuáticos. In G. Villalobos-Zapata, & J. Mendoza (Eds.), *La biodiversidad en Campeche: estudio de estado* (pp. 270–274). Ciudad de México: Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Gobierno del Estado de Campeche, Universidad Autónoma de Campeche, El Colegio de la Frontera Sur.
- Levitt, Y., De Grave, S., & Shenkar, N. (2014). First record of an invasive shrimp from the family Processidae (Crustacea, Decapoda) in the Mediterranean Sea. *Mediterranean Marine Science*, 15(3), 650–653.
- Manning, R. B. (1992). *Processa vossi*, a new caridean shrimp from Florida (Crustacea, Decapoda, Processidae). *Bulletin of Marine Science*, 49, 552–557.
- Manning, R. B., & Chace, F. A., Jr. (1971). Shrimps of the family Processidae from the northwestern Atlantic Ocean (Crustacea: Decapoda: Caridea). *Smithsonian Contributions to Zoology*, 89, 1–41.
- OBIS (Ocean Biogeographic Information System). (2015). Distribution records of *Ambidexter symmetricus* Manning and Chace, 1971 [Dataset]. Intergovernmental Oceanographic Commission of UNESCO. Retrieved on August 20th, 2015 from: <http://www.iobis.org>
- Ríos, R., & Carvacho, A. (1982). Caridean shrimps of the Gulf of California. 1. New records, with some remarks on amphiamerican distribution. *Pacific Science*, 36, 459–465.