



NOTES AND NEWS

A NEW SOUTHERN RECORD FOR A SAND CRAB, *LEPIDOPA WEBSTERI* BENEDICT, 1903 (DECAPODA, ALBUNEIDAE)

BY

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INTRODUCTION

Albuneid sand crabs are small anomuran crustaceans that are highly specialized for digging in sand (Faulkes & Paul, 1997a, b; Gingras et al., 2008). Little is known about the basic biology of sand crabs because they leave no visible traces of their presence on the surface of sand, and because their density is low (Murph & Faulkes, 2013). *Lepidopa websteri* Benedict, 1903 is one of two members of the sand crab genus *Lepidopa* that lives in the Gulf of Mexico; the other is *L. benedicti* Schmitt, 1935 (cf. Boyko, 2002). Both species are also found on the Atlantic coastline. Despite being found in sympatry, they are not sister species (Boyko & Harvey, 2009). *Lepidopa websteri* is seldom collected: Hay & Shore (1918) wrote, “a vast amount of digging close to the shore has failed to produce any living specimen, nor has dredging at distances from the shore varying from 200 yards to 20 miles”. Boyko (2002) noted, “This species is an excellent example of the relative scarcity of albuneids”. Because *L. websteri* is rarely collected, new records are important in establishing the distribution of the species. The known distribution of *L. websteri* contains large gaps. For example, there are no records of *L. websteri* between Nuences County, TX, U.S.A. (the current most southern record) and Jefferson Parish, LA, U.S.A., a straight-line distance of 699 km (Boyko, 2002). Here, I describe a new southern record for *L. websteri* on South Padre Island, TX, U.S.A.

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MATERIALS AND METHODS

As part of several ongoing projects (e.g., Nasir & Faulkes, 2011; Murph & Faulkes, 2013), I have been collecting sand crabs of the genus *Lepidopa* at South Padre Island, Texas on an ad hoc basis since 2002, and monthly since September 2009. Animals are collected by digging 10 m transects with a shovel, and turning over sand, inspecting it for *Lepidopa*. At least three transects are dug each month. The specimen identified using keys from Boyko (2002) while still alive, and photographed using a Sony Cyber-Shot DSC-W55 digital camera.

RESULTS

The *Lepidopa websteri* specimen was collected on 23 July 2012, on the beach east of the Coastal Studies Laboratory of The University of Texas-Pan American ($26^{\circ}4'30.59''\text{N}$ $97^{\circ}9'26.59''\text{W}$; fig. 1) on South Padre Island, Cameron County, TX, U.S.A., between 11:30 am and noon. Boyko (2002) noted that *L. websteri* is found most often at the exact low tide line. Low tide occurred about 1:30 pm that day. The specimen was immediately recognized as being different from *L. benedicti* because its antennae are substantially longer relative to body length than in *L. benedicti* (fig. 2). The *L. websteri* specimen had a carapace length of 8.21 mm and

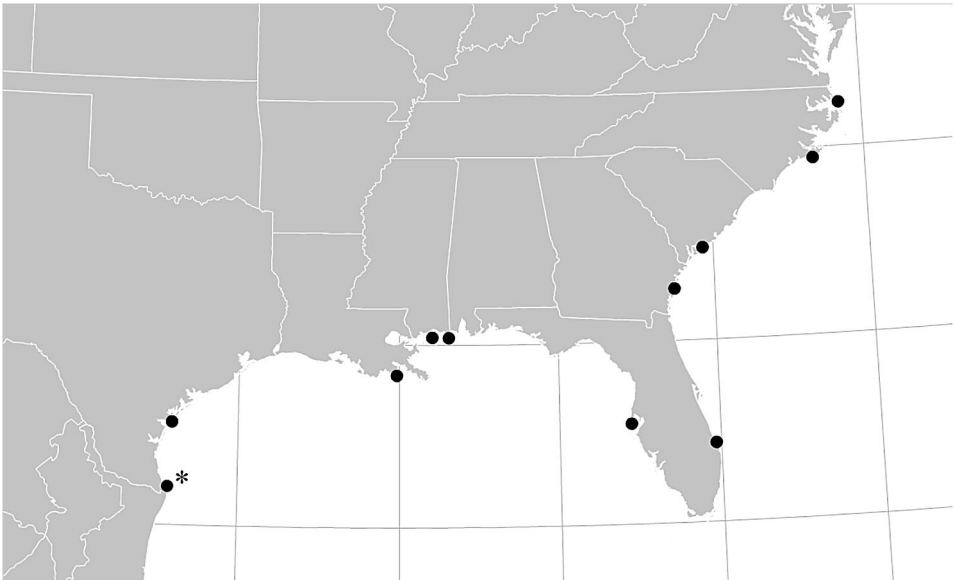


Fig. 1. Distribution of *Lepidopa websteri* Benedict, 1903. Unmarked circles show one representative location for each county or parish, taken from Boyko (2002). New location in Texas marked with an asterisk.

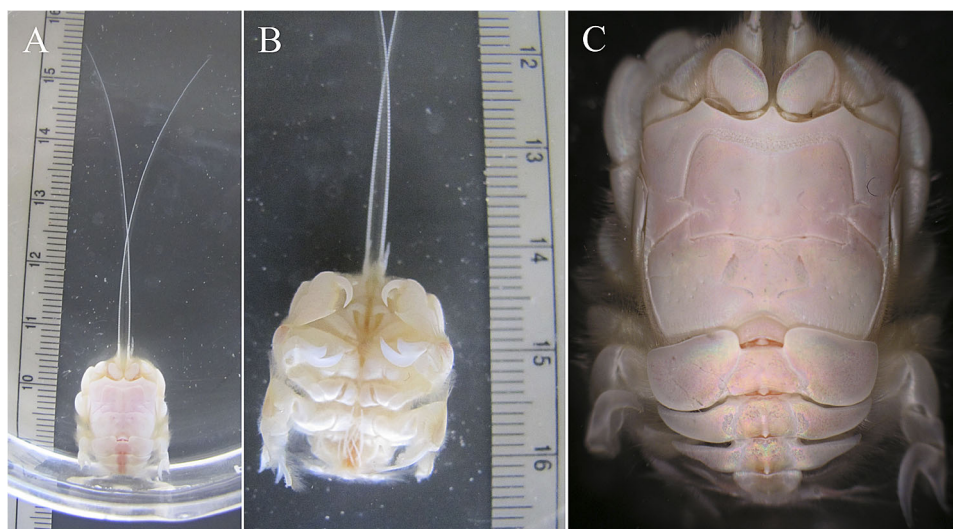


Fig. 2. Live *Lepidopa websteri* Benedict, 1903 specimen collected at South Padre Island, TX, U.S.A. A, Dorsal view of specimen, showing length of antennae relative to carapace length; B, ventral view; C, close up of carapace, showing carapace grooves and ocular peduncles; compare to fig. 38A in Boyko (2002). This figure is published in colour in the online edition of this journal, which can be accessed via <http://booksandjournals.brillonline.com/content/journals/15685403>.

was female. The colour was predominantly white with some pink shading, which matched previous descriptions (Boyko, 2002; see Nasir & Faulkes, 2011 for colour variation in *Lepidopa benedicti*).

Lepidopa websteri is rarer than the sympatric *L. benedicti*. Since regular sampling began in 2009, 283 *L. benedicti* were collected on South Padre Island before the discovery of one *L. websteri* (September 2009–July 2012). A further 255 individuals of *L. benedicti* have since been collected, but no further specimens of *L. websteri* have been found (August 2012–April 2014).

DISCUSSION

This record of *Lepidopa websteri* at South Padre Island, TX, U.S.A., extends the range of *L. websteri* southward along the Texas coastline by 196 km. It is also the first record of *L. websteri* in Texas for over 30 years. Even taking into consideration the known difficulty of finding this species (Hay & Shore, 1918), it is clearly rare in this area of southern Texas, with *L. benedicti* outnumbering it by many hundreds to one.

The southern distribution of *L. websteri* may extend even further southward. A record of a *Lepidopa websteri* specimen from Ciudad Madero, Tamaulipas, Mexico was located online through a search of Global Biodiversity Information

Facility (GBIF) (Instituto de Biología, 2008). This specimen was collected in 1988, and was not included in Boyko's (2002) revision of the family. Because this specimen was presumably identified before Boyko's (2002) revision, its identity needs to be confirmed.

Although the distance between this new record and others is no doubt the result of collecting effort near urban centers, the distribution of *L. websteri* may be patchy. Adult *L. websteri* are not highly mobile (Gingras et al., 2008), suggesting there may be reproductive isolation between different regions. The prospects for reproductive isolation are enhanced by this species' need for fine sandy beaches. The apparent patchy distribution on both scales suggests there may be many geographically isolated populations. The apparent rarity of *L. websteri* suggests there are small breeding populations, which would enhance any effects of genetic drift. Geographic isolation and drift would be an excellent combination for the evolution of cryptic species or subspecies (Hurtado et al., 2010), but the morphology of this species across its distribution is highly consistent (Boyko, 2002). Genetics may reveal more about the population structure and gene flow of this and other sand crab species.

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