

PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTON

---

A NEW SPECIES OF *LEPIDOPA*, *L. DEXTERAE*,  
(ANOMURA, ALBUNEIDAE), FROM THE CARIBBEAN  
COAST OF PANAMA<sup>1</sup>

BY LAWRENCE G. ABELE AND IAN E. EFFORD

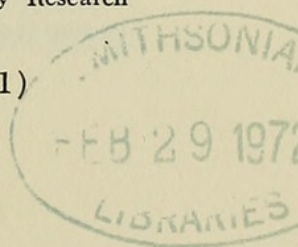
*Rosenstiel School of Marine and Atmospheric Science,  
University of Miami, Miami, Florida 33149, U. S. A. and  
Institute of Resource Ecology,  
University of British Columbia, Vancouver 8, Canada*

Until recently, our knowledge of the taxonomy and distribution of the American sand crab genus *Lepidopa* has been poor. Efford (in press) revised the description of the eight known species and described six new species. One obvious gap in our knowledge results from the great paucity of collections taken along the Caribbean coast of Central America. Thus, we welcomed the opportunity, offered by Dr. Deborah Dexter, to examine material of a species of *Lepidopa* collected from the Caribbean coast of Panama. The species is unknown and, therefore, we have prepared the following description.

The abbreviation cl refers to carapace length measured from the apex of the rostrum to the truncate posterior margin of the carapace; cb refers to carapace breadth measured at the anterior margin; AHF refers to the Allan Hancock Foundation, Los Angeles, California; LM refers to the Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands; UPRC refers to the University of Panama Reference Collection; USNM refers to the National Museum of Natural History, Washington, D. C.

---

<sup>1</sup> Contribution No. 1456 from the University of Miami, Rosenstiel School of Marine and Atmospheric Science. Support for this work was provided by Research Grants GB-7075X and GB-19384 from the National Science Foundation.





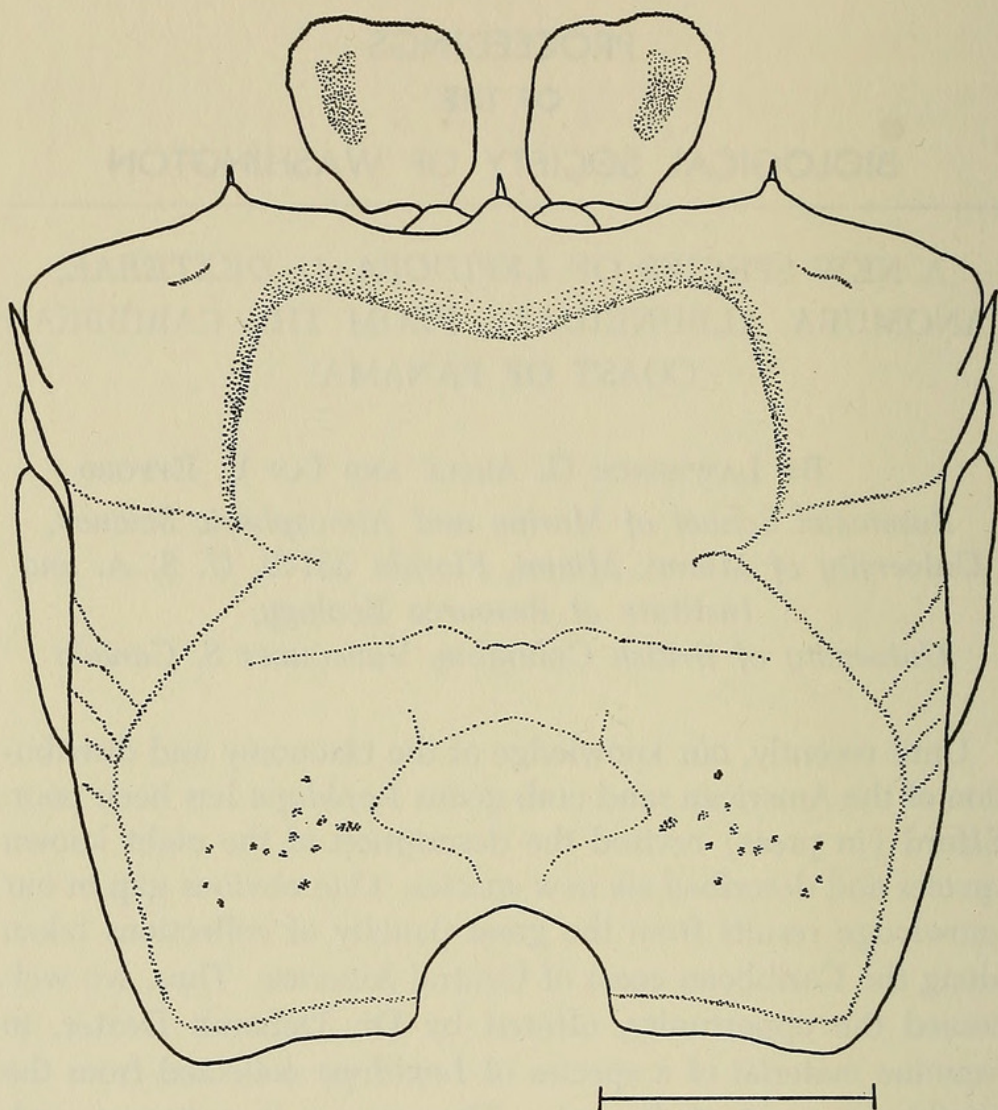


FIG. 1. *Lepidopa dexteræ* new species. Female paratype (setae omitted). Scale = 1 mm.

***Lepidopa dexteræ* new species**

Figures 1 and 2

**Material:** Holotype: female, cl 4.3 mm, cb 5.6 mm; Shimmey Beach, Ft. Sherman, Caribbean coast of the Panama Canal Zone; intertidal sandy beach with coarse sand; 10 August 1969; coll. Deborah Dexter; USNM 135401.—Paratypes: 5 females, cl 3.8 to 4.8 mm; data as for holotype; USNM 135402.—2 females; data as for holotype; UPRC 89.—1 female; data as for holotype; AHF.—2 females; locality data as for holotype but collected 21 January 1971; coll. L. G. Abele, T. A. Biffar; coll. LGA 71-2; LM.

**Diagnosis:** Eye plate with small indentations along anterior edge. Posterior groove of carapace ending at posterior angle of concavity.

**Description:** All of the specimens are non-ovigerous females ranging in size from cl 3.8 to cl 4.8 mm.



The carapace (Fig. 1) is wider than long, laterally convex and highly setose. Its greatest width is at the level of the lateral teeth and it narrows sharply slightly posterior to these teeth. The rostrum (Fig. 2B) is short, blunt and is armed with a distinct subrostral spine. The ocular sinus (Fig. 2B) is smoothly rounded merging laterally into the small lobe of the anterior margin. These small lobes (Fig. 2B) (one on each side of the rostrum) are each armed with an acute spine which extends beyond the level of the subrostral tooth. The lateral spines of the carapace (Fig. 2A) are small and do not extend to the anterior margin of the carapace. The anterior margin of the carapace is lined with long plumose setae. The median concavity of the posterior margin of the carapace (Fig. 2D) is semicircular in shape. The sculpture of the dorsal surface of the carapace (Fig. 1) is typical of the genus. A distinct groove begins at about the middle of the carapace and extends along the lateral margins to the posterior margin of the concavity (Fig. 2D).

The first abdominal somite (Fig. 2E) is wider than long and narrows a little towards the anterior margin. The pleura of the second abdominal somite (Fig. 2E) are greatly expanded with the anterior corners more sharply angled than the posterior corners. The depth of the anterior emargination of the second somite is about one-quarter of its length. The posterior emargination is slight. The overall shape of the somite is somewhat rectangular. The third and fourth somites (Fig. 2C) are similar to each other in shape with the third being larger. The anterior margins of the somites are slightly concave medially. The anterior margins of the pleura are concave to the subacute distal tips. The posterior margins are convex, widening medially from the subacute tips. The general outline of an individual pleuron is saber-shaped. The fifth somite (Fig. 2C) narrows posteriorly so that the anterior margin is almost twice as wide as the posterior margin. The pleura are very narrow and concave anteriorly. They reach to about the distal quarter of the fourth pleuron. The length and width of the sixth somite are subequal. The telson (Fig. 2C) is pear-shaped and distinctly longer than wide.

The eye plate (Fig. 2H) is longer than wide with the anterior edge armed with indentations. The median angle is evenly rounded. The anterior margin is slightly concave medially. The lateral angle is on a distinctly higher level than the medial angle and is more rounded than the medial angle. The medial margin is almost straight. The dorsal surface of the eye plate is smooth and shiny and carries no setae. The margins of the eye plate are lined with setae, some of which are nearly half as long as the plate. A few additional setae extend out from the smooth, ventral surface of the eye plate. The eye spot is somewhat diffuse but of a general rectangular shape. It is located in the distal half of the plate lateral to the center.

The length of the third segment of the antennule (Fig. 2F) is slightly less than three times its width. The dorsal ramus of the flagellum is long and slender, and lined with two rows of long setae arranged as a wide V. The arrangement of these setae is such that when the two antennular



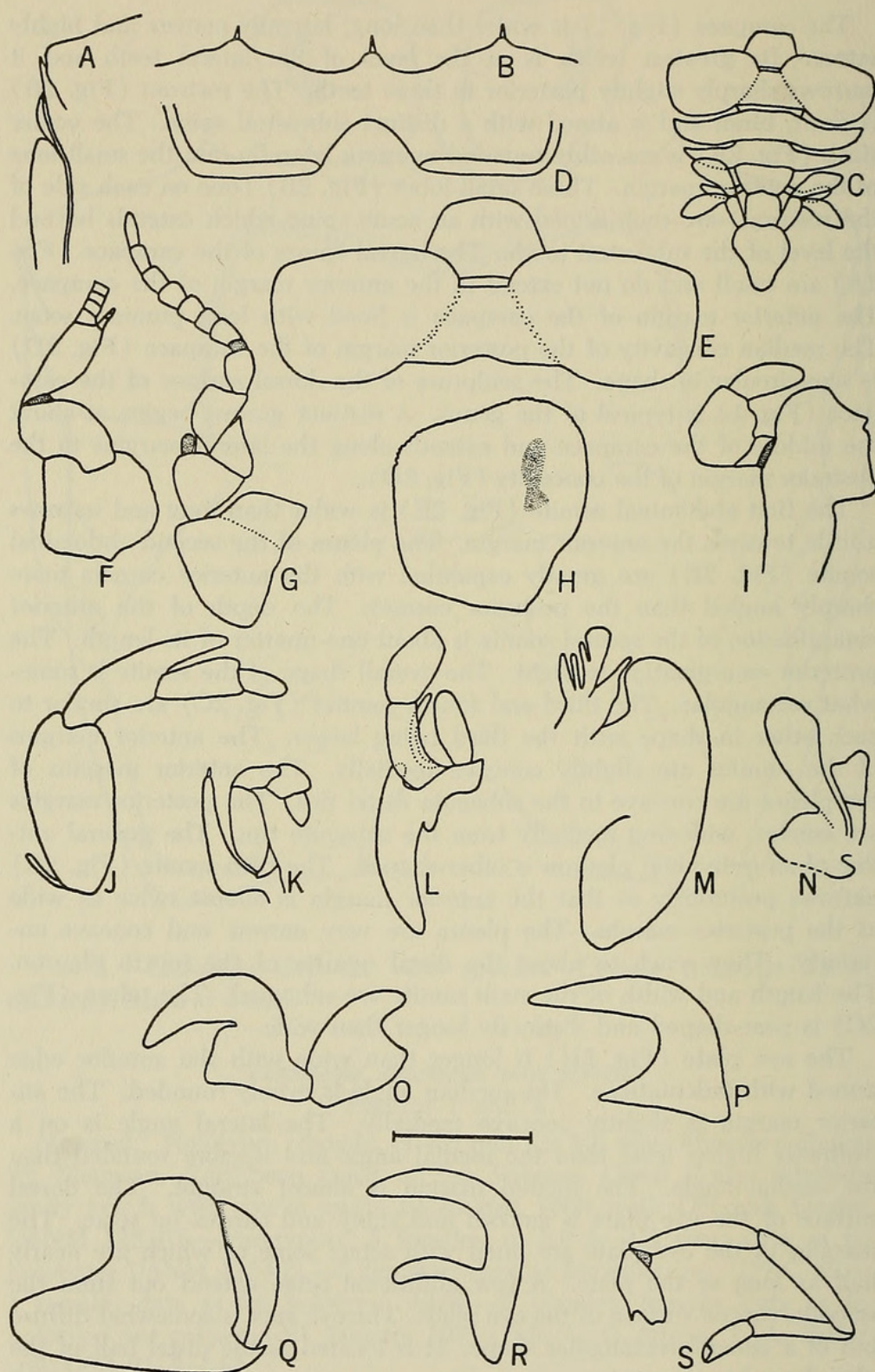


FIG. 2. *Lepidopa dexterae* new species. Holotype (setae omitted): A, left anterolateral portion of carapace. B, anterior margin of carapace. C, abdomen. D, posterior border of carapace. E, first and second abdominal somites. F, antennule. G, antenna. H, right eye plate. I,



flagella come together, the setae would form a distinct square tube—presumably a respiratory tube. The ventral ramus of the flagellum is short, consisting of three articles. It reaches to the third article of the dorsal ramus.

The basal antennal segment (Fig. 2G) is broad with a distinct lateral expansion. The second segment is very narrow proximally but widens rapidly distally. The scaphocerite is slightly longer than wide. The flagellum has eight articles. The most distal article is about four times as long as wide.

The mandible (Fig. 2I) has a three-jointed palp and a sharp cutting edge armed with two teeth, a blunt tooth adjacent to a stronger sub-acute tooth. The maxillula (Fig. 2N) has the coxal endite shorter and narrower than the basial endite. The palp is very broad. The maxilla (Fig. 2M) is typical. The first maxilliped (Fig. 2L) has the coxal and basial endites distinctly separated. The palp is distinct and narrow extending to the ultimate segment of the exopod. The exopod is broad, consisting of two segments; the ultimate segment being broader and slightly shorter than the penultimate. The epipod is well developed. The exopod of the second maxilliped (Fig. 2K) consists of two segments; the ultimate being very narrow and much reduced. The penultimate segment of the second maxilliped is expanded. The expansion of the antepenultimate segment of the third maxilliped (Fig. 2J) extends almost to the distal margin of the penultimate segment. The exopod is short and narrow. The two arthrobranchs are reduced. The branchial formula is:

	Maxillipeds			Pereiopods				
	1	2	3	1	2	3	4	5
Pleurobranch	—	—	1	—	—	—	—	1
Arthrobranch	—	—	2	2	2	2	2	—
Podobranch	—	—	1	—	—	—	—	—
Exopod	1	1	1	—	—	—	—	—
Epipod	1	—	1	—	—	—	—	—

The first pereiopods are subchelate. The dactyl (Fig. 2Q) is strongly curved and is acute. The fixed finger is curved upwards and is acute. The upper margin of the palm slopes down sharply slightly proximal to

←

mandible. J, third maxilliped. K, second maxilliped. L, first maxilliped. M, maxilla. N, maxillula. O, dactyl and propodus of second pereiopod. P, dactyl of fourth pereiopod. Q, right chela. R, dactyl of third pereiopod. S, fifth pereiopod.

Scale—4 mm for C; 2 mm for A, B, D, E, F, G, J, K, L, O, P, Q, R, S; 1 mm for H, I, M, N.



the distal margin. The dactyl of the second pereopod (Fig. 2O) has a deep proximal emargination formed by an acute, curved distal process and a truncate proximal process. The dactyl of the third pereopod (Fig. 2R) has both processes long and slender; the distal one is curved and acute, the proximal one is blunt and shorter than the distal. The dactyl of the fourth pereopod (Fig. 2P) has the distal process long and straight with the proximal process shorter and acute. The dactyl of the fifth pereopod (Fig. 2S) is much reduced and is equal to about one-fourth of the length of the palm.

The color of this species is highly iridescent.

*Etymology:* The specific name is for the collector Dr. Deborah Dexter of San Diego State University who was kind enough to allow us to study this material.

*Remarks:* The species is known only from the type locality. The specimens were collected from a sandy beach having a coarse grain size and moderate wave action. On the same beach a few specimens of *Lepidopa richmondi* Benedict and *Emerita portoricensis* Schmitt were collected. A search for additional specimens in the areas of Piña, the San Blas Islands and Ft. San Lorenzo was unsuccessful. These beaches all had fine-grained sand and slight wave action, and *Hippa testudinaria* (Herbst) (= *H. cubensis*) was very common, with up to 30 specimens per square meter on many beaches. In addition, at Piña a few specimens of *Lepidopa richmondi* Benedict, *Emerita portoricensis* Schmitt and *Arenaeus cribrarius* (Lamarck) were collected.

*Discussion:* Efford (in press) showed that the species in the genus *Lepidopa* could be divided into three groups—the *myops-californica* group, the *benedicti* group and the *venusta* group. *Lepidopa dexterae* fits fairly well into the *benedicti* group as the distal edge of the eyeplate has small indentations and is lined with long setae. In addition, the undersurface of the plate is smooth, except for a few setae near the edges. Other characteristics putting it in the *benedicti* group are the antepenultimate segment of the third maxilliped which extends almost to the distal end of the penultimate segment, the antennal flagellum which has eight articles and a rostrum which has a subrostral spine.

The species differs from the *benedicti* group, and resemble the *venusta* group, in having an eyeplate which is rounded, rather than square, and in having the posterior groove on the carapace straight rather than following the edge of the posterior concavity.

Within the *benedicti* group it resembles *richmondi*, *mearnsi*, and *haigae* in having a subrostral spine but, as the groove along the posterior edge is interrupted, it is closer to the latter two species.

#### LITERATURE CITED

- EFFORD, IAN E. (in press). The species of sand crabs in the genus *Lepidopa* (Decapoda: Albuneidae). *Zoologischen Anzeiger*.



Abele, Lawrence G. and Efford, Ian E. 1971. "A new species of *Lepidopa*, *L. dexterae*, (*Anomura*, *Albuneidae*), from the Caribbean coast of Panama." *Proceedings of the Biological Society of Washington* 84, 501–506.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/107519>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/44357>

**Holding Institution**

Smithsonian Libraries and Archives

**Sponsored by**

Biodiversity Heritage Library

**Copyright & Reuse**

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Biological Society of Washington

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.