

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY

OF

WASHINGTON

VOLUME 111

NUMBER 2

24 JUNE 1998

ISSN 0006-324X

THE BIOLOGICAL SOCIETY OF WASHINGTON

1998-1999

Officers

President: Richard P. Vari
President-elect: Brian F. Kensley

Secretary: Carole C. Baldwin
Treasurer: T. Chad Walter

Elected Council

Michael D. Carleton
W. Duane Hope
Susan L. Jewett

Rafael Lemaitre
Roy W. McDiarmid
James N. Norris

Custodian of Publications: Storrs L. Olson

PROCEEDINGS

Editor: C. Brian Robbins

Associate Editors

Classical Languages: Frederick M. Bayer
Plants: David B. Lellinger
Insects: Wayne N. Mathis
Vertebrates: Gary R. Graves

Invertebrates: Stephen L. Gardiner
Frank D. Ferrari
Rafael Lemaitre

Membership in the Society is open to anyone who wishes to join. There are no prerequisites. Annual dues of \$25.00 (for USA and non-USA addresses) include subscription to the *Proceedings of the Biological Society of Washington*. Annual dues are payable on or before January 1 of each year. Renewals received after January 1 must include a penalty charge of \$3.00 for reinstatement. Library subscriptions to the *Proceedings* are: \$40.00 for USA and non-USA addresses. Non-USA members or subscribers may pay an additional \$25.00 to receive the *Proceedings* by Air Mail.

The *Proceedings of the Biological Society of Washington* (USPS 404-750) is issued quarterly. Back issues of the *Proceedings* and the *Bulletin of the Biological Society of Washington* (issued sporadically) are available. Correspondence dealing with membership and subscriptions should be sent to:

BIOLOGICAL SOCIETY OF WASHINGTON
P.O. BOX 1897
LAWRENCE, KANSAS 66044, U.S.A.

Payment for membership is accepted in US dollars (cash or postal money order), checks on US banks, or MASTERCARD or VISA credit cards.

Manuscripts, corrected proofs, and editorial questions should be sent to:

EDITOR
BIOLOGICAL SOCIETY OF WASHINGTON
NATIONAL MUSEUM OF NATURAL HISTORY
WASHINGTON, D.C. 20560, U.S.A.

Known office of publication: National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.

Printed for the Society by Allen Press, Inc., Lawrence, Kansas 66044

Periodicals postage paid at Washington, D.C., and additional mailing office.

POSTMASTER: Send address changes to PROCEEDINGS OF THE BIOLOGICAL SOCIETY OF WASHINGTON, P.O. Box 1897, Lawrence, Kansas 66044.

A new species of *Cassidinidea* Hansen (Isopoda: Sphaeromatidae) and first record of the genus from the eastern tropical Pacific

Michel E. Hendrickx and Ma. del Carmen Espinosa-Pérez

Estación Mazatlán UNAM, P.O. Box 811, Mazatlán, 82000 Sinaloa, Mexico

Abstract.—*Cassidinidea mexicana*, a new species, is described from an abundant material from the southeastern Gulf of California, on the west coast of Mexico. The species is closely related to the type species of the genus, *C. ovalis* (Say) with which it shares a very similar appendix masculina, and an almost similar arrangement of trifold serrated spines on the distal margin of the carpus of pereopod 7. The absence of dorsal nodules on pereonites (very weak, almost wanting, in *ovalis*) and the presence of a single, median elevation on the pleotelson are other similarities between the two species. It differs from this Atlantic species, however, by the presence of a pair of weak ridges almost parallel to the lateral margin of the pleotelson, the presence of another pair of ridges, inverted "v"-shaped, running from the anterior part of the median elevation of the pleotelson towards its posterior margin, and the absence of a clear indentation on the distal margin of the exopod of pleopod 1. The new species is the first record of the genus *Cassidinidea* in the east Pacific region.

The subfamily Cassidininae Hansen was recently reviewed by Bruce (1994). Species of this subfamily of Sphaeromatidae Latreille are small and usually associated with shallow water, estuarine or coastal lagoonal habitats. Although he indicates that "... the resolution of the status of the Cassidininae must wait until further data are available on the [two other subfamilies] Sphaeromatinae and Dynameninae" Bruce (1994:1083) implicitly accepted the validity of the Cassidininae by providing synonymy and diagnosis. Bruce (1994) further divided the genera of Cassidininae into three groups: the "*Cassidina*" group, the "*Leptosphaeroma*" group, and the "*Cassidinidea*" group. The material on which this study is based clearly belongs to the *Cassidinidea* group (containing only two genera) for the following reasons: the lateral margins of the cephalon are expanded (not expanded in the *Leptosphaeroma* group) and the pleon has only one segment (three segments in the *Cassidina* group). It is distinct from *Syncassidina* Baker, the second genus belonging to the

"*Cassidinidea*" group, in having non-flattened first and second antennule peduncle articles. Its affinity with the genus *Cassidinidea* Hansen is confirmed by the presence of the very long and acute appendix masculina set on a proximal directed expansion of the endopod of male pleopod 2, the absence of a rostral point, pleon without sutures and a relatively wide epistome. Dorsal nodules are apparently very weak or wanting (as in *Naesa ovalis* Say, 1818, the type species of *Cassidinidea*), except on the pleotelson.

The exact composition of the genus *Cassidinidea* Hansen is still to be confirmed. According to Bruce (1994), several Atlantic species are probably synonyms of previously described species [e.g., *C. ovalis* (Say, 1818)]. All together, there seems to be 10 valid species, none from the east Pacific. The presence of the herein described new species along the coast of western Mexico, represents the first record of the genus *Cassidinidea* for the west coast of America.

Abbreviations used in this paper are: TL, total length; coll., collector; EMU, Estación Mazatlán UNAM Invertebrates Reference Collection; USNM, United States National Museum, Smithsonian Institution, Washington D.C., U.S.A.; QM, Queensland Museum, Brisbane, Australia.

Family Sphaeromatidae Latreille, 1825

Genus *Cassinidea* Hansen, 1905

Cassinidea mexicana, new species

Figs. 1–4

Type material.—Holotype, 1 male (TL 3.0 mm), Estero Sirena (23°09.03'N, 106°19.00'W), Mazatlán, Sinaloa, Mexico, 24 Apr 1997 (EMU-4072). Paratype, 1 female (TL 3.7 mm), same locality, 24 Apr 1997 (EMU-4073). Paratypes, 2 males (TL 2.5 and 2.8 mm) and 2 ovigerous females (TL 4.0 and 4.2 mm), same locality, 24 Apr 1997 (USNM 285513). Paratypes, Estero el Infiernillo, Mazatlán, Sinaloa, Mexico, 14 Mar 1996, 1 male (TL 3.2 mm) and 1 female (TL 2.9 mm) (QM W22716). Paratypes, 3 males (TL 2.7–3.1 mm) and 8 females (TL 1.6–3.7 mm), same locality, 24 Apr 1997 (EMU-4074) (All specimens, coll. J. Salgado-Barragán and M. C. Espinosa-Pérez).

Additional material.—Estero el Infiernillo, Mazatlán, Sinaloa, Mexico, 06 Sep 1995, 1 male (TL 2.8 mm), 1 female (TL 3.4 mm), and 1 ovigerous female (TL 3.1 mm) (EMU-4432) (coll. J. Salgado-Barragán and M. C. Espinosa-Pérez). Same locality, 14 Mar 1996, 3 males (TL 2.7–3.1 mm), and 3 females (TL 2.8–3.5 mm) (EMU-4433) (coll. J. Salgado-Barragán and M. C. Espinosa-Pérez). Estero Caiman (23°09.20'N, 106°19.93'W) 1 female (TL 3.5 mm) (EMU-4434) (coll. J. Salgado-Barragán). Estero el Verde (23°25'N, 106°34'W), Sinaloa, Mexico, 10 Feb 1979, 2 ovigerous females (TL 4.0–4.3 mm) (coll. M. E. Hendrickx) (EMU-4435). Estero Barron (23°08.87'N, 106°18.78'W), 24 Feb 1994, 1 male (TL 3.0 mm) (EMU-4436) (coll. J. Salgado-Barragán). Estero

Sirena (23°09.03'N, 106°19.00'W), Mazatlán, Sinaloa, Mexico, 24 Apr 1997, 1 male (TL 2.5 mm), 6 females (TL 1.4–2.7 mm), and 2 ovigerous females (TL 3.4 mm) (EMU-4630).

Description of male.—Body ovate, about 1.8 times as long as wide; pereonites 1–7 without sub-median nodules (Fig. 1A). Pleotelson with a median elevation and a pair of lateral ridges; another pair of inverted 'V'-shaped ridges running from the anterior part of the median elevation towards posterior margin of the pleotelson. Epistome (Fig. 3F) anterior margin almost straight, reduced, less than half the length of cephalon in dorsal view. Epistome in ventral view subrectangular, slightly longer than broad, lateral and posterior sides strongly concave. Cephalon without rostral point. Antennule peduncle (Fig. 2A) with 3 articles; flagellum with 7 articles, long, extending slightly beyond half of pereonite 2. Antenna peduncle (Fig. 2B) with 5 articles; flagellum with 8 articles, slightly longer than antennular flagellum.

Mandible palp (Fig. 3B) articles 1 and 2 with 5 serrated spines each. Left mandible with incisor tooth 3-dentated (an inconspicuous fourth) and lacinia mobilis (3-dentated); setal row of 3 serrated setae; molar process with a straight serrated margin. Right mandible similar in shape, with only one 3-dentated (an inconspicuous fourth) incisor tooth; setal row made of 3 serrated setae and one bifid serrated setae; molar process as in left mandible. Apex of the lateral lobe of maxillula (Fig. 3D) with 8 non-plumose, non-serrated spines, and 2 serrated spines; medial lobe with 4 plumose spines. Maxilla (Fig. 3C) lateral lobe with 4 serrated spines, middle with 4, and medial lobe with 5 plumose spines (the inner one mounted on a short lobular process) and two slender non-plumose spines. Maxilliped palp (Fig. 3E) with only 4 distinguishable articles; about 7-8-6-7 setae on articles 1–4, respectively.

All pereopods with setules on margins. Pereopod 1 (Fig. 2C) merus about half as

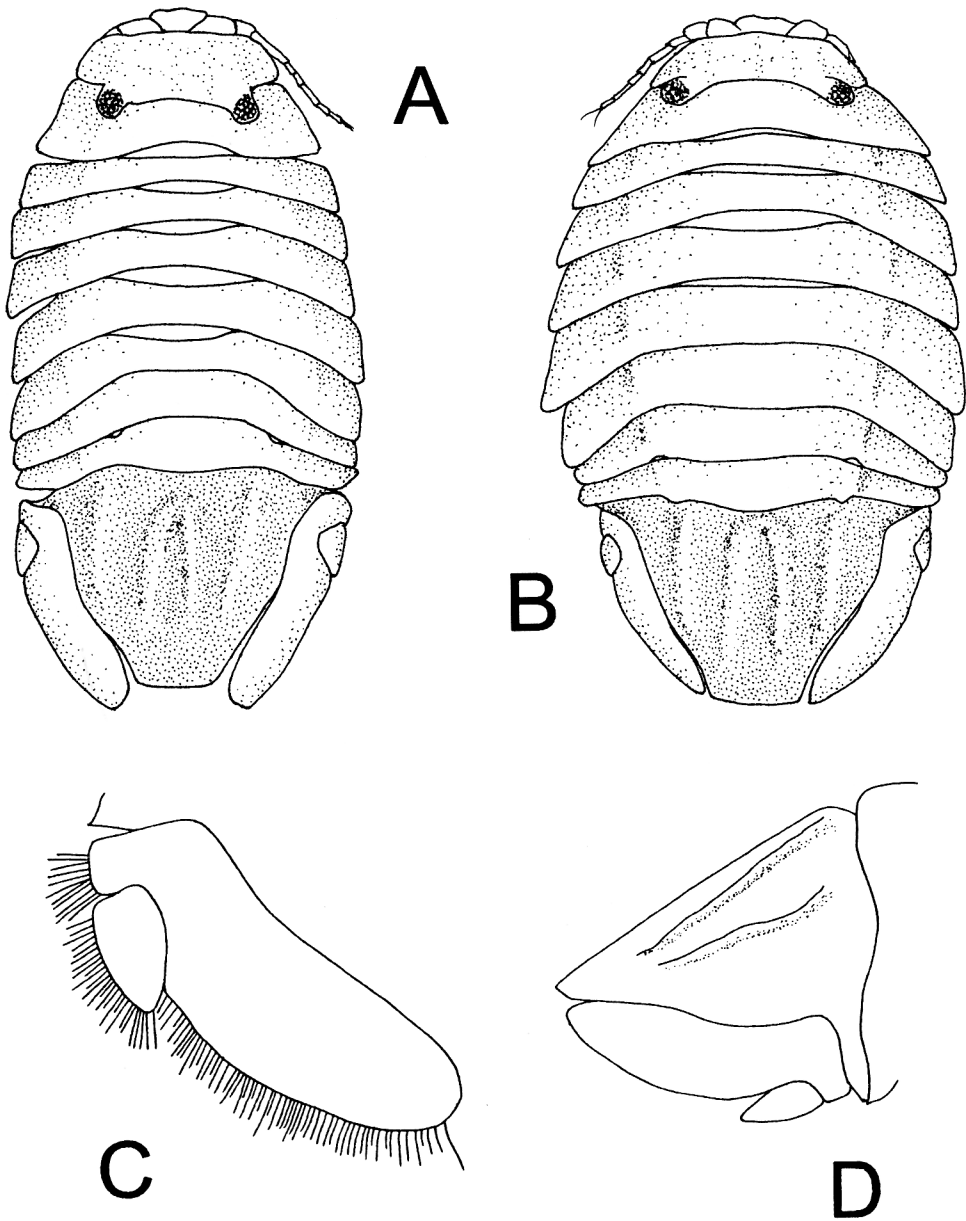


Fig. 1. *Cassidinidea mexicana*, new species. A, Paratype, male, dorsal view (EMU-4074); B, Paratype, female, dorsal view (EMU-4074); C, left uropod, male, dorsal view; D, pleotelson, female, lateral view.

long as ischium; merus with one serrated spine at superior distal angle; carpus triangular, short, about half length of merus; propodus and ischium sub-equal in length; dactylus more than half the length of propodus, with one subterminal spine on the

lower margin; 2 serrated scales near base of this sub-terminal spine. Pereopod 2 (Fig. 2D) about 15% longer than pereopod 1, carpus stronger and longer than in pereopod 1, provided with three large trifold serrated spines on superior distal margin; merus

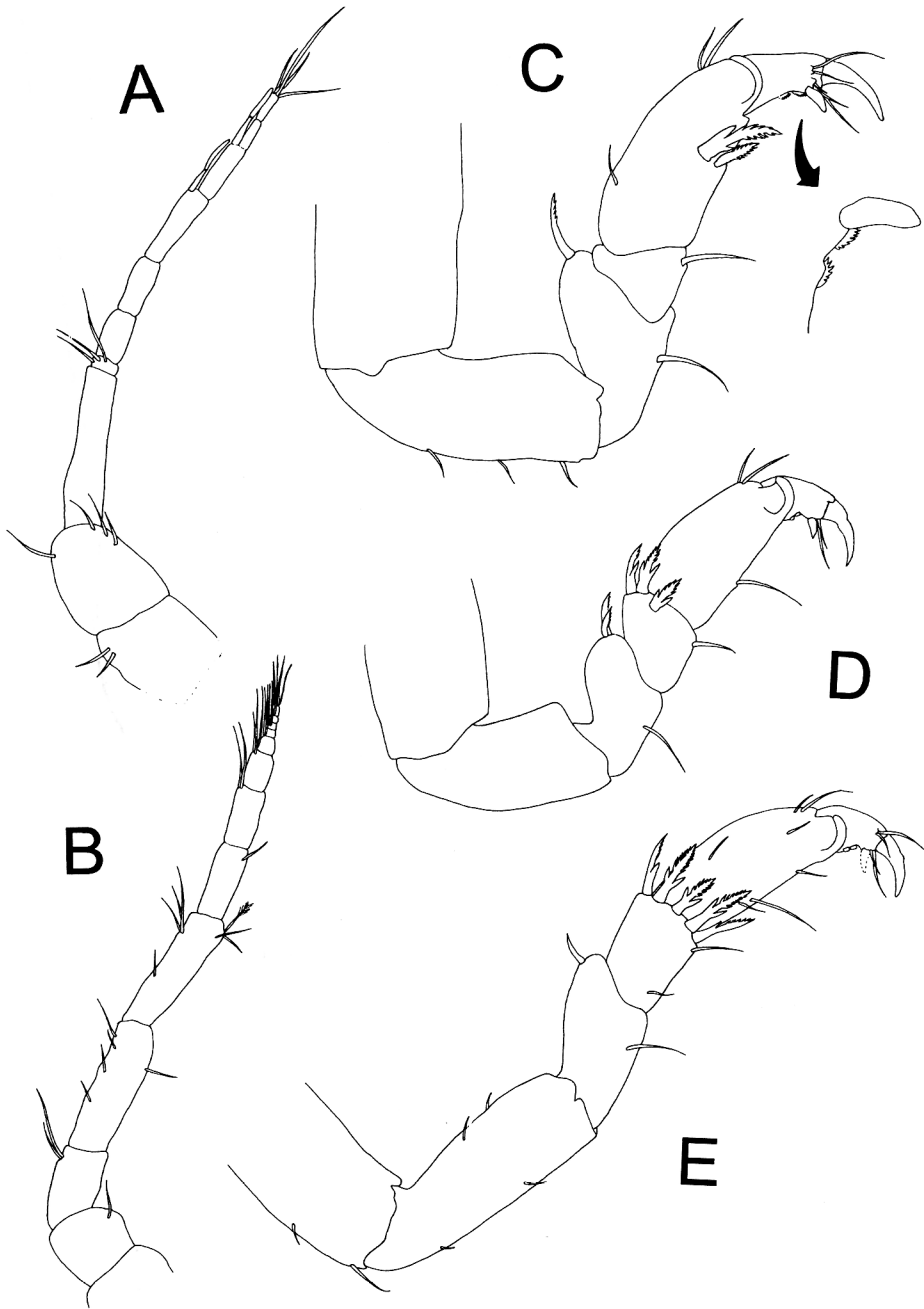


Fig. 2. *Cassidinidea mexicana*, new species, male holotype (EMU-4072). A, right antennula; B, right antenna; C, right pereopod 1; D, right pereopod 2; E, right pereopod 7.

with a pair of serrated spines at superior distal angle; inferior margins of merus, carpus and propodus each with 1 setae. Pereiopods 3–4 similar in shape and spination to

pereopod 2, slightly longer, the 4th the longest. Pereopod 7 (Fig. 2E) more slender and longer than pereopod 2; carpus distal margin with 5 large trifold serrated spines; is-

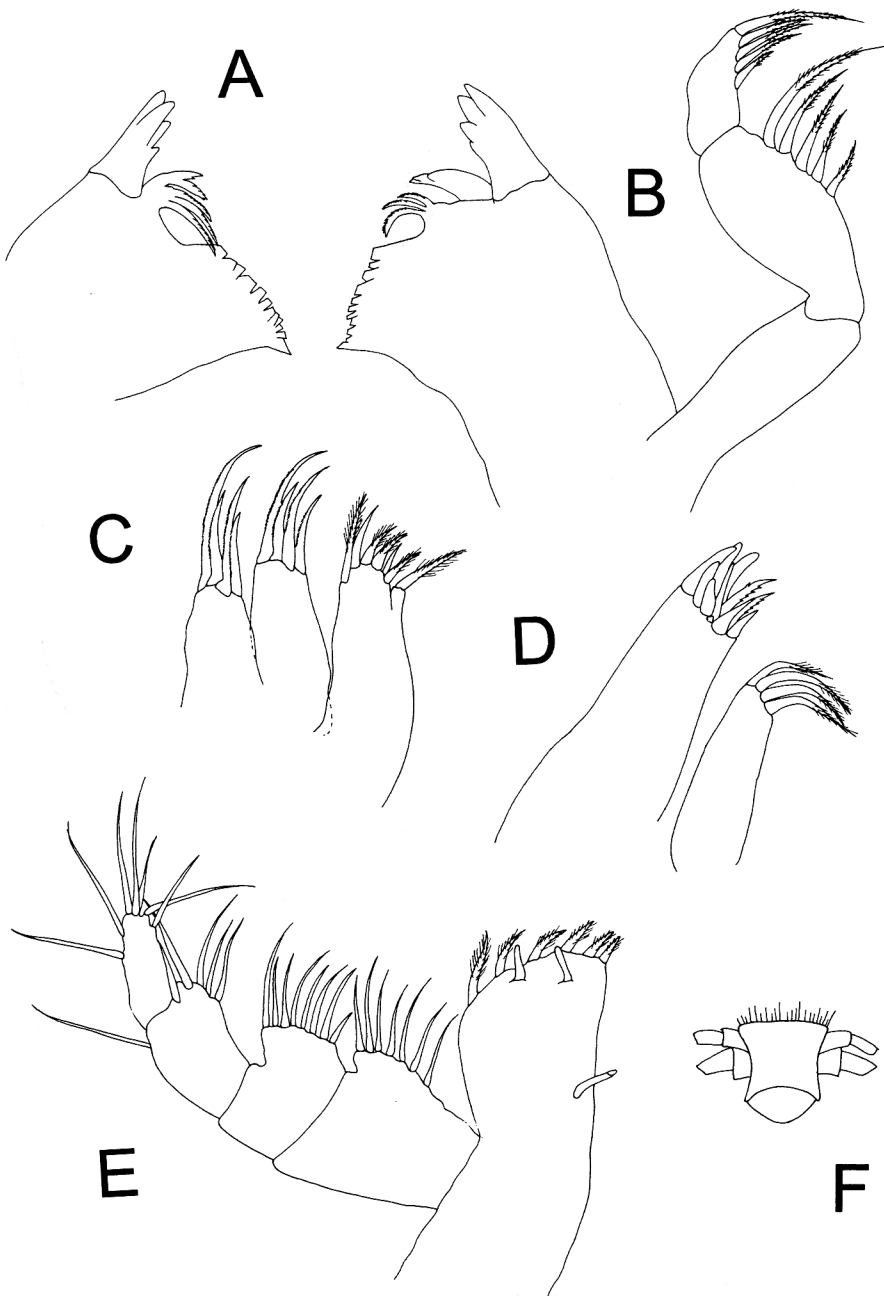


Fig. 3. *Cassidinidea mexicana*, new species, male holotype (EMU-4072). A, right mandible; B, left mandible; C, right maxilla; D, right maxillula; E, right maxilliped; F, epistome and upper lip, ventral view.

chium, merus and carpus with 1–2 setae on the inferior margin; merus with one setae at the superior distal angle. Pereiopods 5–6 similar in shape and spination to pereiopod

7; these pereiopods slightly increasing in size from 5th to 7th.

Penial process subtriangular, ca. 1.3 times longer than wide (Fig. 4F).

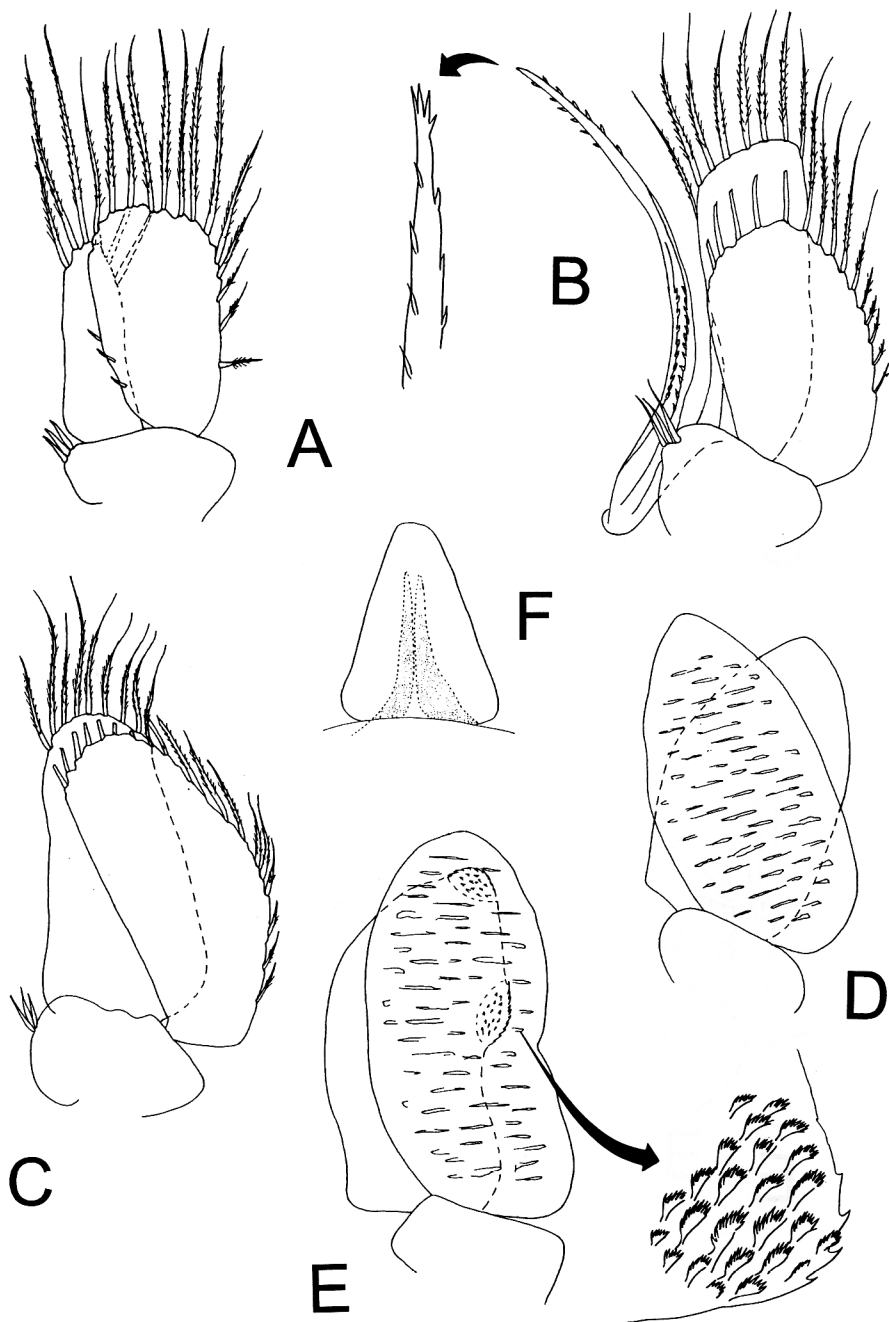


Fig. 4. *Cassidinidea mexicana*, new species, male holotype (EMU-4072). A, right pleopod 1; B, pleopod 2; C, pleopod 3; D, pleopod 4; E, pleopod 5; F, penial process.

Pleopods 1–3 (Fig. 4A–C) endopod and exopod with plumose marginal setae. Distal margin of pleopod 1 endopod almost rounded, with no clear distal indentation. Appen-

dix masculina of pleopod 2 elongate, slender, twice (or a little more than twice) as long as distance from the distal margin of peduncle to distal margin of endopod,

curved in its distal half; shaft with marginal spines almost throughout its length; tip four-spined. Pleopod 4 (Fig. 4D) without marginal setae; exopod almost entirely covered with transverse folds. Pleopod 5 (Fig. 4E) without marginal setae; exopod with two scaled patches, scales with 5–12 spinules of sub-equal length; endopod entirely covered with transverse folds.

Uropod exopods as in other species of Cassidinidea (Fig. 1C).

Female.—Body ovate, wider than in male, about 1.6 times as long as wide. All characters agree closely to male, including all pereopods. No variation of mouthparts in ovigerous females.

Etymology.—The epithet refers to the west coast of Mexico where the new species was first recorded.

Habitat.—Most specimens of *C. mexicana* were collected from the aerial roots of *Rhizophora mangle* L., in Estero de Urias, where they live among epifauna: the mussel *Mytella strigata* (Hanley), the oyster *Crasostrea corteziensis* (Hertlein), and the barnacles *Balanus inexpectatus inexpectatus* Pilsbry and *Balanus eburneus* Gould. Specimens from Estero el Verde were found under a piece of dead wood. Specimens of presumably the same species were also collected under twigs, on an intertidal mudflat, at Caimanero coastal lagoon, south of Mazatlán (ca. 22°55'N, 106°05'W) but were no longer available for comparison. Search for material of *Cassidinidea* in another coastal lagoon located much northern, in the central part of the Gulf of California (Estero el Soldado, San Carlos, Guaymas), were unsuccessful. The general habitat ("mangroves") of *C. mexicana* is similar to the habitat reported for *C. arndti* (Ortiz & Lalana, 1980) from Cuba. Bruce (1994: 1151) erroneously used the same specific name for two *Cassidinidea*: "*C. monodi* (Carvacho, 1977)" [sic] and *C. monodi* (Barnard, 1951). The species of Carvacho is in fact *C. barnardi*, found in mangrove of Guadeloupe ("... sur les racines de *Rhizophora mangle*"). A fourth species occa-

sionally living on mangrove is *C. korpie* Bruce, 1994 (tidal *Rhizophora*).

Geographic distribution.—The species is currently known only from the southeast coast of the Gulf of California.

Remarks.—The new species is strikingly similar to *C. ovalis*, the type species of the genus. It shows a very similar appendix masculina, and similar arrangement of trifold serrated spines on the distal margin of the carpus of pereopod 7. The absence of distinguishable dorsal nodules on pereonites (very weak, almost wanting, in *C. ovalis*) and the presence of a single, median elevation on the pleotelson are other similarities between the two species. Male and female of *C. mexicana* show a weak but distinct lateral carina on both sides of the pleotelson elevation, and another pair of ridges (inverted "v"-shaped) running from the anterior part of the median elevation of the pleotelson towards its posterior margin; none of these ridges have been reported in *C. ovalis* by Bruce (1994). *Cassidinidea mexicana* also differs from this Atlantic species by the absence of a marked indentation on the distal margin of the exopod of pleopod 1. Two species of *Cassidinidea* present ridges on pleotelson: *C. monodi* (Barnard, 1951), known from South Africa and *C. korpie* Bruce, 1994, from Australia. *Cassidinidea mexicana* differs from the former by its widely truncate pleotelson tip (narrower and rounded in *C. monodi*), the size and shape of the epistome (large, subquadrangular and broader than long in *C. monodi*) and the shape of the penial process on 7th sternite (much narrower in *C. monodi*); it differs from the latter by the absence of submedian nodules on pereonites 1–7, the absence of a clear notch on distal margin of exopod of pleopod 1, the shape of the edge of the molar process of mandibles and, as in the case of *C. monodi*, by the size and shape of the epistome (large, subquadrangular and broader than long in *C. korpie*) and the shape of the penial process on 7th sternite (much narrower in *C. korpie*).

According to Bruce (1994: 1083), the lacinia mobilis is usually present on left mandible of Sphaeromatidae but "... it is not always clear if the distal most spine of the spine row [on the anterior margin of mandible] is a reduced lacinia mobilis or not when a distinct lacinia mobilis is not present". In the new species the lacinia mobilis is clearly present.

Acknowledgments

The authors thank the CONABIO (Comisión Nacional para el Estudio y Uso de la Biodiversidad, Mexico) for supporting the research on isopods of the Pacific coast of Mexico (CONABIO project H-170) and the people who helped during the present study. José Salgado-Barragán provided useful information regarding the habitat of the new species and helped during the collections. The habitus drawings are by Graciano Valenzuela.

Literature Cited

- Barnard, K. H. 1951. New records and descriptions of new species of isopods and amphipods from South Africa.—*Annals and Magazine of Natural History* (12) 4:698–709.
- Bruce, N. L. 1994. The Cassidiniinae Hansen, 1905 (Crustacea: Isopoda: Sphaeromatidae) of Australia.—*Journal of Natural History* 28:1077–1173.
- Carvacho, A. 1977. Isopodes de la mangrove de la Guadeloupe, Antilles Françaises.—*Studies on the Fauna of Curaçao and other Caribbean Islands* 174:1–24.
- Hansen, H. J. 1905. On the propagation, structure and classification of the family Sphaeromidae.—*Quarterly Journal of Microscopical Science* 49: 69–135.
- Latreille, P. A. 1825. Familles naturelles du regne animal, exposes succinctement et dans un ordre analytique avec l'indication de leurs genres. Paris, 570 pp.
- Ortiz, M., & R. R. Lalana. 1980. Una nueva especie de isópodo (Crustacea, Isopoda) de los manglares de la costa sur de Cuba.—*Revista de Investigaciones Marinas* 6:160–174.
- Say, T. 1818. Description of three new species of the genus *Naesa*.—*Journal of the Academy of Natural Sciences of Philadelphia* 1:482–485.