

Two Species of *Homola* (Dromiacea, Homolidae) from Guam¹

L. G. ELDREDGE

University of Guam Marine Laboratory UOG Station,
Mangilao, Guam 96913

Abstract—Two species of *Homola* are examined from depths to 500 m from experimental shrimp traps from the island of Guam, Mariana Islands. One of them is new to science; the other is widespread throughout the Indo-West Pacific.

Introduction

The generic name *Homola* Leach replaced the name *Thelxiope* Rafinesque by a decision of the International Commission of Zoological Nomenclature (Holthuis, 1958). Of the four known species in the genus, two are known from the Indo-West Pacific. *Homola orientalis* Henderson ranges throughout most of the region; whereas *H. megalops* Alcock is known only from the Arabian Sea to the Bay of Bengal. In a review of the family Homolidae, Serene and Lohavanijaya (1973) provided keys to the genera in the family and to the Indo-West Pacific species.

Homola orientalis Henderson

Fig. 1

RESTRICTED SYNONYMY:

Homola orientalis Henderson, 1888, p. 19; Sakai, 1936, p. 46; Serene and Lohavanijaya, 1973, p. 24; Sakai, 1976, p. 39; Yaldwyn and Dawson, 1976, 92.

Thelxiope orientalis (Henderson), Barnard, 1950, p. 340; Gordon, 1950 p. 221; Sakai, 1964, p. 15; Crosnier, 1976, p. 241.

DESCRIPTION: Surface regions of the carapace not well defined; front deflexed, rostrum terminating in two distinctly divided teeth, recurved slightly and turned dorsally, some specimens with 2 small lateral spines on front at base of rostrum. Gastric region with 9 blunt spines—1 on each lateral protogastric, 3 on each lateral mesogastric, 1 medial metagastric (in large female this spine is not pointed but present as a broad tubercle). Each hepatic region with 2 unequal, pointed spines—the larger anterior at the origin of lateral border and smaller is immediately posterior to it. Lateral border with 10–12 blunt tubercles in row, which decrease in size posteriorly.

¹ Contribution No. 137. University of Guam Marine Laboratory.

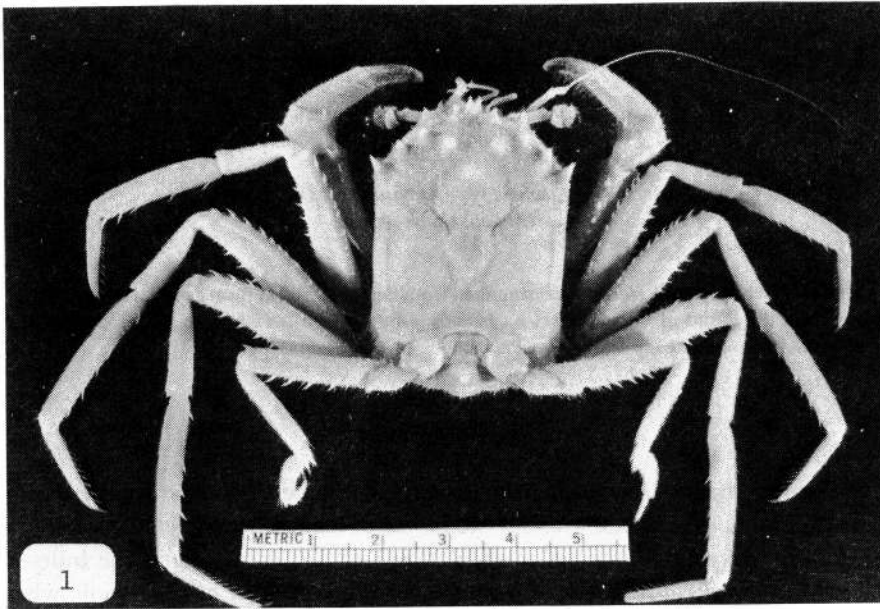


Fig. 1. *Homola orientalis*, female.

Supraocular spine pointed; orbit forms a rounded groove laterally into which the antennal peduncle fits; 2 small spines ventral to orbit. Posterior border of carapace with indentation into which the first abdominal segment fits. Each subhepatic region subdivided into two parts—posterodorsal with 7 blunt spines, and anteroventral with 9–11 pointed spines, the solitary, most anterior spine is the largest and the remaining spines are aligned in two rows. Pterygostomial region with numerous low tubercles. The cervical groove ends posterior to the 2 hepatic spines; the *linea homolica* extends from the posterior margin of the carapace to the second hepatic spine. Cardiac region somewhat elevated. Corneal thickness less than two-and-a-half times thickness of ocular peduncle. Basal segment of antennule irregularly shaped and expanded laterally, second and third segments subequal, flagellum short. Second segment of antennal peduncle with dorsolateral spine, flagellum about twice the carapace length. Epistome with sharp spine medially and with 2 low tubercles laterally.

Chelipeds equal, covered with long setae. Merus triangular in cross section, all three borders with spines—upper border with 8–9 spines, increasing in size distally, recurved distally, 2 spines at carpal joint; lower outer border with 9 spines of varying lengths, none recurved; lower inner border with 6–7 blunt tubercles. Carpus with numerous spines, as many as 12, of varying lengths, the largest on the inner dorsoanterior margin. Propodus with low row of tubercles along upper and lower inner margins; pollex dark brown with cutting edge. Dactylus smooth, dark brown with matching cutting edge, no gape between dactylus and pollex.

Second, third, and fourth walking legs flattened. Merus of each with anterior and

posterior spines; merus of second leg with as many as 12 recurved spines and a low tubercle on the anterior border, 6–9 spines increasing in size distally on the posterior border; merus of third leg with 12–13 spines, largest spine on the anterior border most distal, and with 7–9 spines on the posterior border; merus of fourth leg with spines and row of low tubercles on the anterior border, 6 spines on the posterior border. Carpus of all legs with 2–4 stiff setae. Propodus with stiff setae, propodus of second and third legs with 4 single and 1 pair of articulated spines on posterior border; propodus of fourth leg with 5–6 articulated spines. Dactylus with semitransparent articulated spines and pointed tip; legs 2–4 with 13–16 articulated spines on each posterior surface.

Fifth walking legs flattened, carried subdorsally. Merus with 1 spine at most distal point on anterior border, 4–5 spines on posterior border; carpus smooth, anterior border of propodus smooth, posterior border with 7 articulated spines not arranged in a straight line; anterior border of dactylus smooth, posterior border with 7–8 immovable spines arranged in straight line.

Abdomen pubescent, 7 segments, second segment with pointed tubercle, third with median elevation, terminal segment pointed; males with 2 pairs of pleopods, second with distal segment terminating as an expanded and flattened disk; females with 5 pairs of pelopods (mostly covered with eggs), first pair very small.

MEASUREMENTS (in mm): The measurements for the smallest and largest specimens follow: carapace length including rostrum 26.4–41; carapace width 19.8–31.8; antennal flagellum 36–69; entire length of right cheliped 41–66; entire length of third leg 67–110; entire length of fifth leg 38–60.

MATERIAL EXAMINED: 11 July 1973, 300 m, off Tumon Bay, Guam, trap No. 1 (1 male); 2 November 1973, 233 m, Agat Bay, Guam, trap No. 11 (2 females); 14 May 1975, 270 m, off Adelup Pt., Guam, trap No. 30 (1 female); 15 May 1975, 400 m, of Cabras Island, Guam, trap No. 33 (1 male, 2 females); 16 January 1975, 300 m, off east coast of Pagan, New World Sta. No. 15 (1 female). Collected with an assemblage of other crustaceans—*Heterocarpus ensifer*, *Parapandalus* sp., *Parapagurus* spp. (*P. boletifer*), *Munida japonica*, and *Homola dickinsoni*—and one gastropod, *Hindsia*.

DISTRIBUTION: Kei Island; Cebu, Philippines; Sumatra; Sagami Bay, Izu Peninsula, Mikawa Bay, Waku, Kii Nagashima, Kii Minabe, Tosa Bay, and Nagasaki, Japan; Portuguese East Africa; La Reunion; Gulf of Aden; Zanzibar; New Zealand; Australia; Guam and Pagan, Mariana Islands. This is the first record of the species from the Mariana Islands.

REMARKS: The specimens examined very closely match the original description (Henderson, 1888). However, there were a few slight variations. These specimens have sharp hepatic spines rather than blunt (Henderson, 1888). Henderson states that the "ocular peduncles are remarkably long;" however, in the present specimens the peduncle is only slightly longer than the second segment. The epistome bears a sharp spine rather than a blunt one as described by Henderson. In all, the Guam

specimens appear to have sharper spines than those of the original two specimens. Barnard (1950) indicates that his specimens have only one tooth between the cervical and branchial grooves; however, Henderson (1888) says *H. orientalis* has two.

Homola dickinsoni n. sp.

Figs. 2, 3

DESCRIPTION: Carapace surface regions relatively well defined; front deflexed, rostrum terminating in flat tip with median indentation, resulting in slightly bifid appearance, tip recurved dorsally; base of rostrum with 2 sharp spines about equal to the supraorbital spines. Gastric region with 9 sharply pointed spines—1 on each lateral protogastric, 3 on each lateral mesogastric, 1 median mesogastric—metagastric without spine but with tuberculated elevation. Each hepatic region with 1 small spine at end of cervical groove, 8–9 sharply pointed low spinules in a row, decreasing in size and sharpness posteriorly; lateral border originating at hepatic spines; supraocular spine large, pointed, deflexed, resulting in narrow and deep antennal peduncular groove; 2 sharply pointed spines ventrally, the dorsal one equal in size to the supraocular spine. Posterior border of carapace with distinct indentation for first abdominal segment. Each subhepatic region subdivided into two parts—posterodorsal with 1 large pointed spine (the largest on the carapace) and 2–3 small spines and anteroventral with 4–5 spines, the most anterior, solitary and sharply pointed. Pterygostominal region with 3 pointed spines in a row and a few very small low tubercles. *Linea homolica* extends from the posterior margin to the hepatic spine. Branchial and cardiac regions elevated. Corneal thickness more than two-and-a-half times thickness of ocular peduncle. Basal segment of antennule expanded and rounded, second and third segments subequal, flagellum not twice carapace length. Epistome with medial parallelsided spine, with low elevations laterally.

Chelipeds equal, covered with long setae. Merus triangular in cross section and with row of spines on rounded anterior face—upper border with 6–8 recurved spines, the largest distalmost and with 2–3 spines at carpal joint, the middle one the largest; inner border with 5 sharp (not recurved) spines and on rounded anterior side 5 spines and 1 at carpal margin; outer border with 6–7 major spines, three of which have small spinules arising from posterior margin of larger one, outer surface with 3 rows of low pointed spines, ventralmost row ends distally with 3 recurved, pointed spines. Carpus with as many as 30 spines of varying lengths and sizes, two largest on elevation on inner surface. Upper inner and lower inner margin and middle inner side of propodus with numerous, low, pointed spines. Cutting edge of pollex smooth with small tooth at dactylar origin, only edge darkly pigmented. Dactylus smooth, distinct tooth on cutting edge (not as well developed in all specimens), only cutting edge pigmented; no gape between dactylus and pollex, tips cross slightly.

Second, third, and fourth walking legs flattened dorsoventrally. Merus of each with anterior and posterior spines; anterior border of merus of second leg with two rows of short spines (anterior with numerous, posterior with 6) which merge at distal

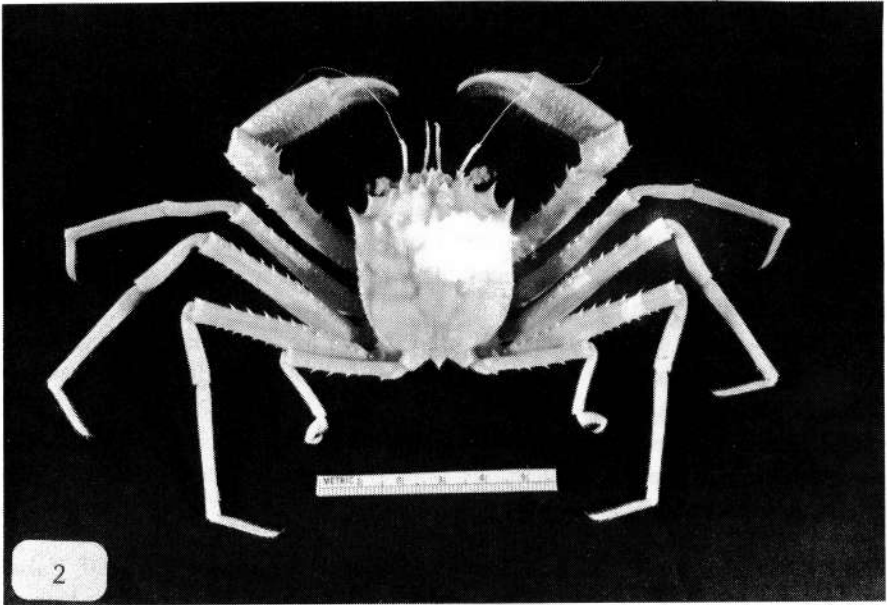


Fig. 2. *Homola dickinsoni*, male holotype.

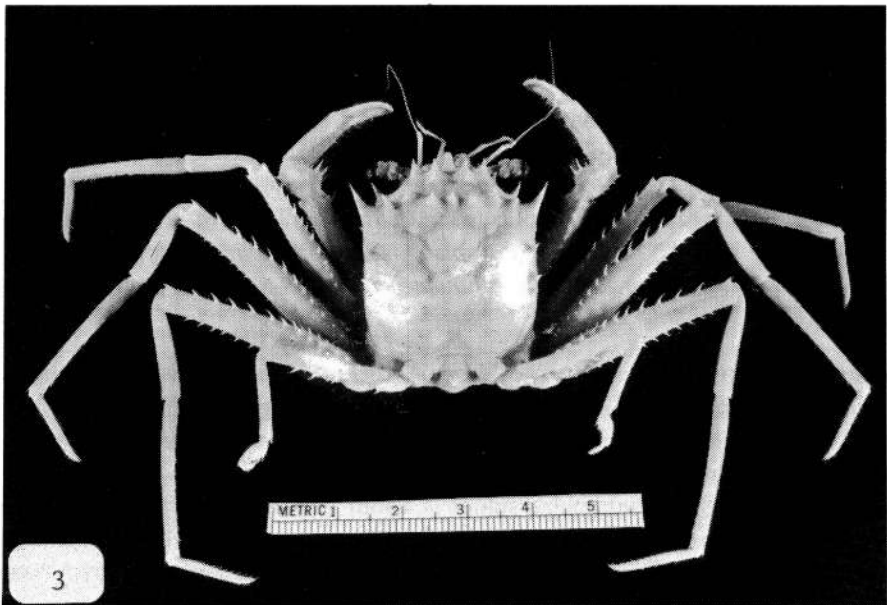


Fig. 3. *Homola dickinsoni*, female paratype.

part of flat area to form single row of 7 spines, also 1 additional spine at carpal margin, posterior border of merus of second leg with row of low spines increasing in size distally to the spine at the carpal margin; anterior border of merus of third leg with two rows forming single row of 5–6 spines and also 1 additional spine at carpal margin; posterior border of merus of fourth leg with low row of spines. Carpus of second, third, and fourth legs smooth. Propodus of second, third, and fourth legs with a posterior border of stiff setae, numerous articulated spines, and a pair of articulated spines at dactylus margin. Posterior margin of dactylus with low, curved semitransparent articulated spines, second leg with 11–12 spines, third leg with 12–13 spines, and fourth leg with 14 spines.

Fifth walking leg flattened, carried subdorsally. Merus with 1 pointed spine on anterior, 5 spines on posterior border; anterior border of propodus smooth, posterior with 7–9 unmoveable spines.

Abdomen with 7 segments, second segment with pointed spine, terminal segment pointed; males with 2 pairs of pleopods as in *H. orientalis*; females with 5 pairs of pleopods, first pair smallest.

MEASUREMENTS (in mm): The measurements for the [holotype] and paratype (allotype) and the smallest and largest measurements for the remaining paratypes follow: Carapace length including rostrum [42], (32), 21.6–41.6; carapace width [37], (26.6), 18.2–35.5; antennae flagellum [57], (27), 19–49; entire length of right cheliped [90], (48), 34–84; entire length of third leg [113], (86), 65–121; entire length of fifth leg [57], (43), 30–62.

MATERIAL EXAMINED: 23 August 1973, 366 m, off Hospital Point, Guam, trap No. 6 (1 male, 1 female); date unknown, 500 m, off Hospital Point, trap No. 15 (1 male, 2 females); 15 August 1975, 400 m, off Cabras Island, Guam, trap No. 33 (1 female); 18 July 1975, 366 m, off Agana Bay, Guam, trap No. 45 (1 male); 6 August 1975, 366 m, off Double Reef, Guam, trap No. 49 (2 males, 1 female); 16 October 1975, 366 m, off Anae Island, Guam, Trap No. 57 (1 female). Holotype male, Trap No. 49; Paratype (allotype) female, Trap No. 49. Collected with an assemblage of other crustaceans—*Heterocarpus ensifer*, *H. laevigatus*, *Parapandalus* sp., *Parapagurus* spp. (*P. boletifier*), *Trizopagurus* sp., *Munida japonica*, *Homola orientalis*—and one gastropod species and asteroid *Mediaster* sp.

REMARKS: Although the rostrum of *Homola dickinsoni* is not distinctly bifid as in *H. orientalis* it does not end in a single point as in *H. vigil* A. Milne Edwards. The medial metagastric spine present in *H. orientalis* is absent from *H. dickinsoni*. The new species has one sharp hepatic spine rather than two found in *H. orientalis*. The size of each of the two subocular spines is about equal to that of the supraocular spine. The thickness of the ocular peduncles of the two species differs. The shape and the spination of the chelipeds of *H. dickinsoni* differ from *H. orientalis* by having an inflated outer surface with three rows of low spines. The dentation at the cutting edges of the pollex and dactylus is different in the two species. The double rows of spines on

the upper anterior edge of the merus of the second, third, and fourth walking legs merge to form a single row in *H. dickinsoni*. The carapace of *H. dickinsoni* is subequal in length and width, whereas that described for *H. megalops* is urn shaped. The posterior borders of the propodus and dactylus of the walking legs of *H. dickinsoni* have numerous articulated spines, although *H. megalops* has only a few "spinules" on the dactylus.

For these reasons the specimens are considered the new species *H. dickinsoni* in recognition of the late Richard "E" Dickinson who assisted in collecting many of the specimens. Specimens have been deposited in the B. P. Bishop Museum, Honolulu—holotype S8595, paratype S8596.

ACKNOWLEDGMENTS

The specimens described were collected in conjunction with a research project sponsored by the Office of Sea Grant Programs (U.S. Department of Commerce, NOAA) and the University of Guam (Grant No. 04-5-158-45). Special thanks are extended to Janet Haig, Ann Fielding, and Roy K. Kropp who critically read this manuscript and provided suggestions and to Roy K. Kropp who photographed the specimens. Thanks are also extended to Michael J. Wilder, research assistant and to the Marine Laboratory Marine technicians for their assistance in collecting the specimens.

References Cited

- Barnard, K. H. 1950. Descriptive catalogue of South African decapod Crustacea (crabs and shrimps). *Ann. South African Mus.* 38: 1-837.
- Crosnier, A. 1976. Données sur les crustacés décapodes capturés par M. Paul Guezé à l'île de La Réunion lors d'essais de pêche en eau profonde. *Trav. Doc. ORSTOM* 47: 225-256.
- Gordon, I. 1950. Crustacea: Dromiacea. *Sci. Rep. John Murray Exped.* 9(3): 201-253.
- Henderson, J. R. 1888. Report on Anomura. *Rep. Sci. Res. Challenger, Zool.* 27: 1-36.
- Holthuis, L. B. 1958. Proposed suppression under the Plenary Powers (a) of certain names given by C. S. Rafinesque to genera and species of the Orders Decapoda and Stomatopoda (Class Crustacea) and (b) of certain names currently regarded as senior subjective synonyms of the names of the type species of the genera "Homola" and "Lissa" both of Leach, 1815, belonging to the foregoing Class. *Opin. Dec. Inter. Comm. Zool. Comm.* 19(9): 209-248. [Opinion 522].
- Rathbun, M. J. 1937. The oxystomatous and allied crabs of America. *Bull. U.S. Nat. Mus.* 166: 1-278.
- Sakai, T. 1936. Studies on the crabs of Japan. I. Dromiacea. *Sci. Rept. Tokyo Bunrika Daigaku, Sect. B., Suppl.* 1, 3: 1-66.
- . 1965. The Crabs of Sagami Bay. Maruzen Co., Ltd., Tokyo.
- . 1976. Crabs of Japan and the Adjacent Seas. Kodansha Ltd., Tokyo.
- Serene, R., and P. Lohavanijaya. 1973. The brachyura (Crustacea: Decapoda) collected by the Naga Expedition, including a review of the Homolidae. *Naga Rept.* 4(4): 1-187.
- Yaldwyn, J. C., and E. W. Dawson. 1976. First records of the crab genera *Homola*, *Randallia*, and *Rochinia* from New Zealand (Crustacea: Decapoda; Brachyura). *Res. Nat. Mus. N. Z.* 1(6): 91-103.