

On a collection of *Acropora*-inhabiting trapeziids (Crustacea Brachyura Xanthoidea) from East Africa

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Trapeziid crabs inhabiting *Acropora* corals from three major East African collections were examined. Two new species, *Tetralia innamorata* and *Tetralia vanninii* are described and three previously recognized species, *Tetralia cinctipes* Paulson 1875, *Tetraloides heterodactyla* (Heller 1861) and *Tetraloides nigrifrons* (Dana 1852) are discussed. A key separating these five species is provided.

KEY WORDS: Crustacea, Trapeziidae, systematics, new species, East Africa.

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INTRODUCTION

Unidentified Brachyura of three major East African collections were examined. The first was collected by Dr J.D. Taylor, British Museum (Natural History) on the Royal Society Expedition to Aldabra 1967-1968. A second was shore-collected by Dr A.J. Bruce for the East African Marine Fisheries Research Organization based in Zanzibar (now Institute of Marine Sciences, Zanzibar), and a third from the southern coast of Somalia collected by Prof. M. Vannini, Dipartimento di Biologia Animale e Genetica dell'Università, Florence, Italy, during the Centro di Studio per la Faunistica ed Ecologia Tropicali, Consiglio Nazionale delle Ricerche of Florence 1979 and 1981 expeditions. Two new species of *Acropora*-inhabiting trapeziid crabs, *Tetralia*

innamorata and *T. vanninii* are described from this material and a few specimens held by other institutions. Notes on three other species, *T. cincitipes* Paulson 1875, *Tetraloides nigrifrons* (Dana 1852) and *T. heterodactyla* (Heller 1861) are given.

Abbreviations used: BM = British Museum (Natural History), London; MF = Museo Zoologico of the University of Florence; RMNH = Rijksmuseum van Natuurlijke Historie, Leiden; SMF = Natur-Museum Senkenberg Frankfurt am Main; TAU = Zoological Museum of Tel Aviv University; USNM = United States National Museum, Washington; ovig. = ovigerous and c.w. = carapace width.

SYSTEMATICS

***Tetralia cincitipes* Paulson 1875 (Figs 1A; 3A; 4A, F; 5A; 6A)**

Tetralia heterodactyla; HELLER 1861a: 14; 1861b: 354 (part).

Tetralia cavimana var. *cincitipes* PAULSON 1875: 60, tab. 7 fig. 8.

Tetralia cavimanus; MIERS 1884: 537 (part).

Tetralia glaberrima; BORRADAILE 1902: 265 (part); KLUNZINGER 1913: 314 (part).

Tetralia glaberrima forma *pullidactyla* PATTON 1966: 287.

Tetralia glaberrima pullidactyla; GARTH 1969: 185; SERÈNE 1984: 282, pl. XL, C.

Tetralia cincitipes; GALIL 1986b: 97, figs 1-3; GALIL 1988: 171, fig. 7.

Material examined. 46/79: 1♂; 45 1979: 2♂; 75/1: 2♀ ovig.; 1979/72: 2♂, 2♀ ovig.; 9/111: 1♂; 1979 38/79: 2♂, 2♀ ovig.; 1979 70: 3♂, 1♀, 3♀ ovig.; 1981: 1♂, 1♀ ovig.; 83/3: 3♀ ovig.; 1979 1: 2♂, 5♀ ovig., 1 juv.; 1979 46: 4♂, 1♀, 5♀ ovig.; 1979 00: 1♀ ovig.; 83/3: 5♂; 1979 45: 3♂, 2♀, 3♀ ovig.; 1981 3/1: 1♂; 1981 3/5: 1♀ ovig.; 1981 3/2: 1♂; 1981 3/12: 1 juv.; 46/79: 1 juv.; 1979 65: 1♂; 1979 64: 1♂ 1979 1: 2♂; 1979 5: 5 juv.; 46/79: 1♂, 2♀; 1/1979: 1♂; 75/1: 3♀ ovig.; 75/1: 1♀; 75/1: 1♂ 1/79: 3 juv.; 3/4 1981: 1♂; Gesira, 5-10 km south of Mogadiscio, Somalia, collected M. Vannini, MF 1260.

Sta. 107, Ras Iwatine, Bamburi, Mombasa, Kenya 04°01.3'S 39°44.0'E, 1 m, 27th February 1971, 3♂, 3♀ ovig., BM 1986: 1046; Sta. 134, Wasin Is., Kenya 04°39.8'S 39°24.3'E, 4 m, 5th October 1971, 18♂, 4♀, 10♀ ovig., BM 1986: 1047; collected A.J. Bruce.

Distribution. Red Sea, Kenya, Réunion, Seychelles, Maldives, Taiwan, Philippine Is., Indonesia, Japan, Australia, Line Is., Tubuai Is.

***Tetralia innamorata* n. sp. (Figs 1B; 2A; 3B; 4B, G; 6B)**

Type material. Holotype: Sta. 114, Mombasa Is., Kenya, 04°04.5'S 39°40.4'E, 29th March 1971, 1♂ c.w. 11.1 mm, BM 1987: 23, collected A.J. Bruce. Paratypes: Sta. 114, Mombasa Is., Kenya, 04°04.5'S 39°40.4'E, 29th March 1971, 1♀ c.w. 12.2 mm, BM 1987: 24, collected A.J. Bruce. Gesira, 5-10 km south of Mogadiscio, Somalia, X-1981 65: 1♂ c.w. 9.1 mm, 1♀ ovig. c.w. 10.4 mm, BM 1987: 76; X-1981 21/8-9 47: 1♂ c.w. 11.5 mm, 1♀ ovig. c.w. 13.4 mm, MF 1261; X-1979 61: 1♂ c.w. 8.3 mm, 1♀ ovig. c.w. 9.6 mm, TAU 23103; collected M. Vannini.

Other material examined. X-1979 41: 1♂, 1♀ ovig.; Aug. 1980: 1♀ ovig.; X-1979 19: 1♂, 1♀ ovig.; X-1979/114: 1♂; X-1979 97: 1♂; X-1981 111: 1♂; 4/7/8: 2♀ ovig.; 83/2: 1♂; X-1979 4/7/8: 2♂, 2♀ ovig.; 72/19/9: 1♂; X-1981 19: 1♀ ovig.; X-1979 37: 2♀ ovig.; X-1979 104: 1♂, 1♀ ovig.; X-1979 111: 1♂; X-1979 113: 1♂; X-1979 113: 1♀ ovig.; X-1981 82: 1♂, 1♀ ovig.; X-1979 97: 1♀ ovig.; 87: 1♀ ovig.; 83/7: 1♂, 1♀ ovig.; X-1979 21: 1♂, 1♀ ovig.; X-1979 73 8/ol1: 1♂, 1♀ ovig.; X-1981 83: 1♀ ovig.; X-1979 69: 1♂, 1♀ ovig.; X-1981 90: 1♂, 1♀ ovig., 1 juv.; 72/1979: 1♂, 1 juv.; X-1979 111: 1♀ ovig.; X-1981 50: 1♀ ovig.; Gesira, 5-10 km south of Mogadiscio, Somalia, collected M. Vannini, MF 1262.

Sta. 106, Ras Iwatine, Bamburi, Mombasa, Kenya 04°01.0'S 39°44.6'E, 1 m, 26th February 1971, 1♀ ovig., BM 1986: 1041; Sta. 107, Ras Iwatine, Bamburi, Mombasa, Kenya 04°01.3'S 39°44.0'E, 1 m, 27th February 1971, 1♂, 1♀ ovig., BM 1986: 1039; Sta. 109, Tiwi, Mombasa, Kenya 04°15.9'S 38°36.1'E, 2 m, 1st March 1971, 1♂, 1♀ ovig., BM 1986: 1042 & 1♂, 1♀ ovig.,

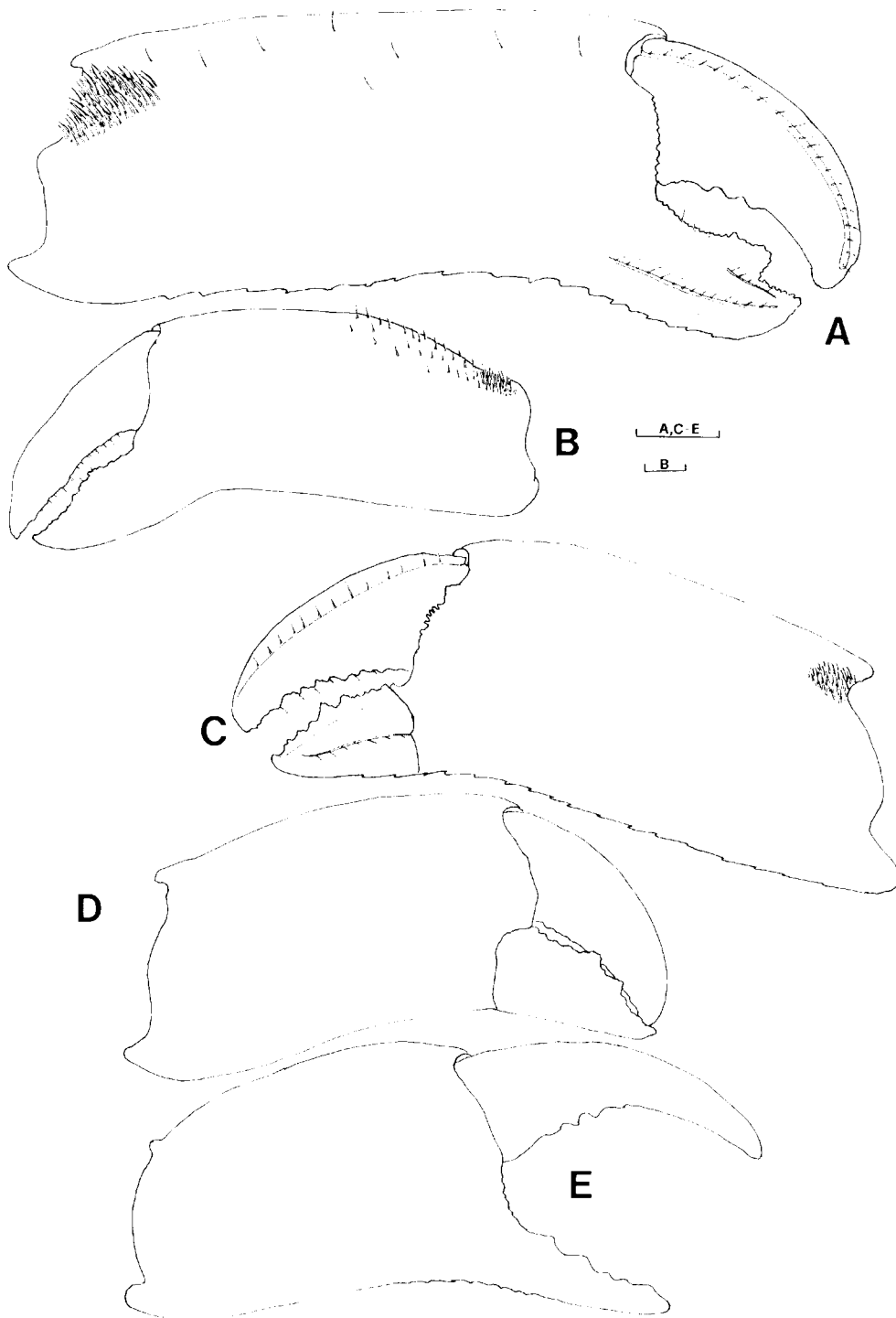


Fig. 1. — Large cheliped; A, *Tetralia cinctipes* Paulson 1875, BM 1986: 1046, ♂; B, *T. innamorata* n. sp., holotype, BM 1987: 23; C, *T. vaminii* n. sp., holotype, MF 1263; D, *Tetraloides heterodactyla* (Heller 1861), BM 1909.5.19.90, ♂; E, *T. nigrifrons* (Dana 1852), BM 1986: 1045, ♂. Scale bar = 1 mm.

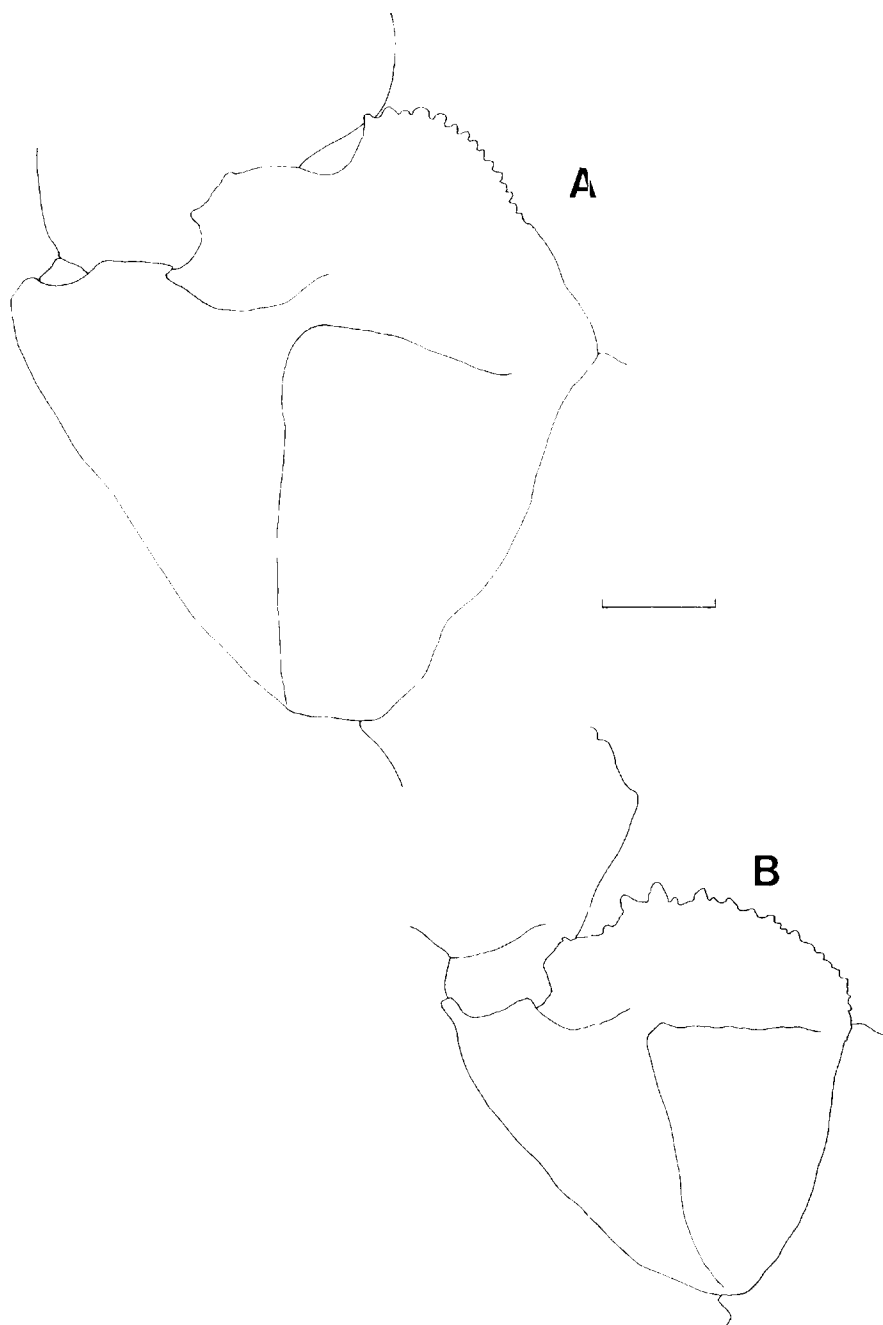


Fig. 2. — Cheliped merus; A, *T. innamorata* n. sp., holotype, BM 1937: 23; B, *T. vanninii* n. sp., holotype, MF 1263. Scale bar = 1 mm.

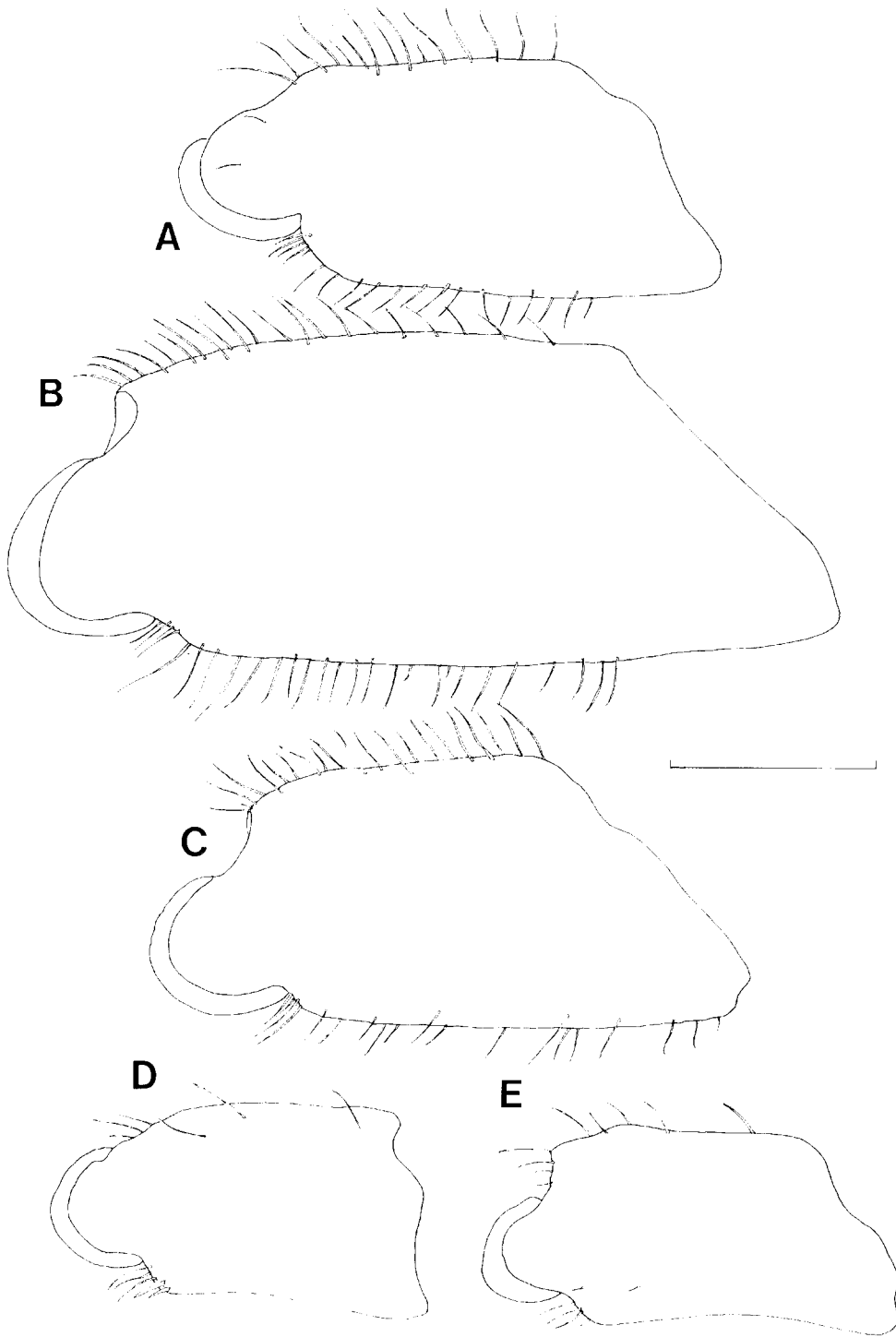


Fig. 3. — Propodus of fifth pereiopod; A, *Tetralia cinctipes* Paulson 1875, BM 1986: 1046, ♂; B, *T. innamorata* n. sp., holotype, BM 1987: 23; C, *T. vanninii* n. sp., holotype, MF 1263; D, *Tetraloides heterodactyla* (Heller 1861), BM 1909.5.19.90, ♂; E, *T. nigrifrons* (Dana 1852), BM 1986: 1045, ♂. Scale bar = 1 mm.

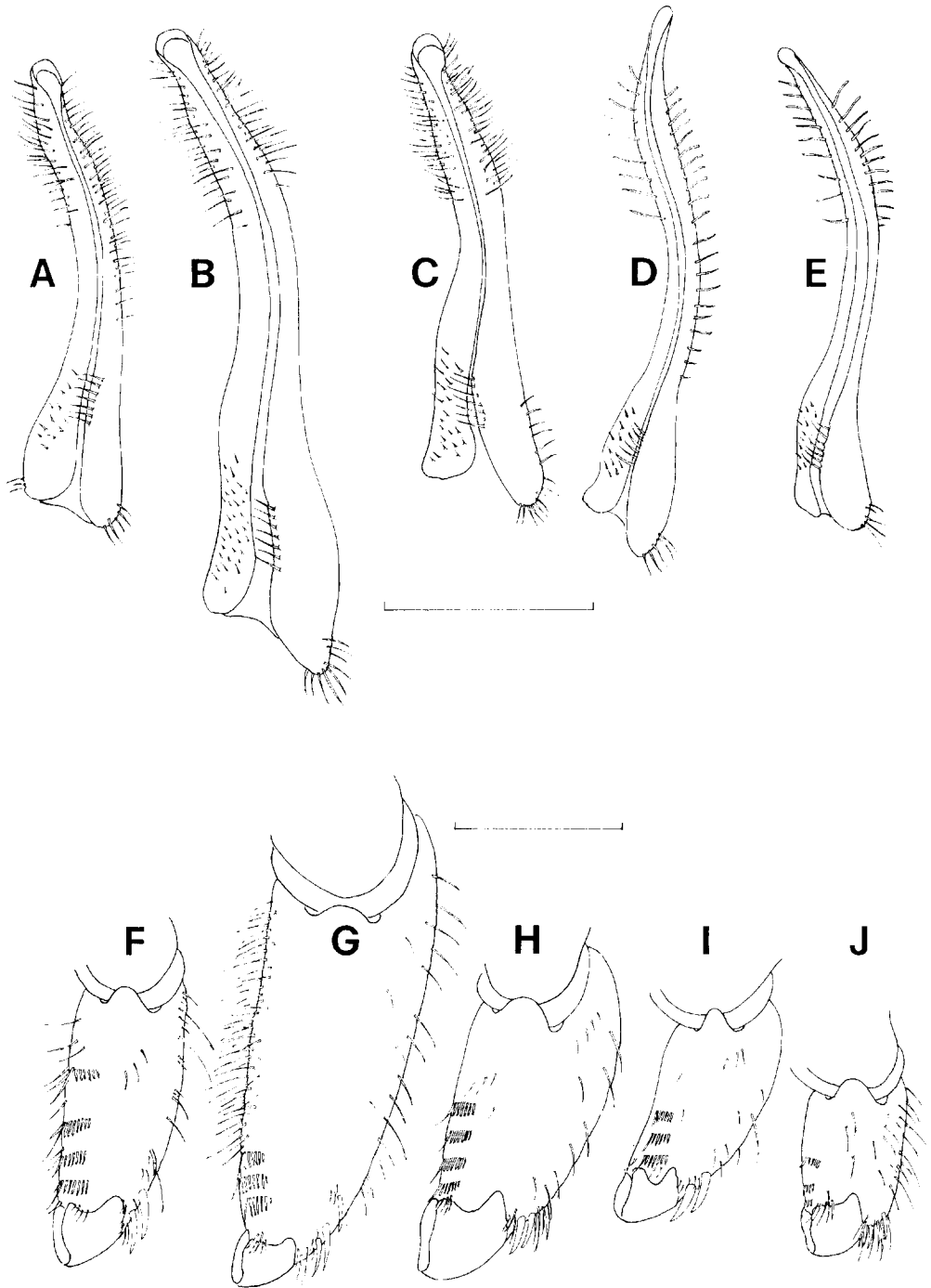


Fig. 4. — First male pleopod; A, *Tetralia cincipes* Paulson 1875, BM 1986: 1046, ♂; B, *T. innamorata* n. sp., holotype, BM 1987: 23; C, *T. vanninii* n. sp., holotype, MF 1263; D, *Tetraloides heterodactyla* (Heller 1861), BM 1909.5.19.90, ♂; E, *T. nigrifrons* (Dana 1852), BM 1986: 1045, ♂ and dactylus of fifth pereiopod F, *Tetralia cincipes* Paulson 1875, BM 1986: 1046, ♂; G, *T. innamorata* n. sp., holotype, BM 1987: 23; H, *T. vanninii* n. sp., holotype, MF 1263; I, *Tetraloides heterodactyla* (Heller 1861), BM 1909.5.19.90, ♂; J, *T. nigrifrons* (Dana 1852), BM 1986: 1045, ♂. Scale bar = 1 mm.

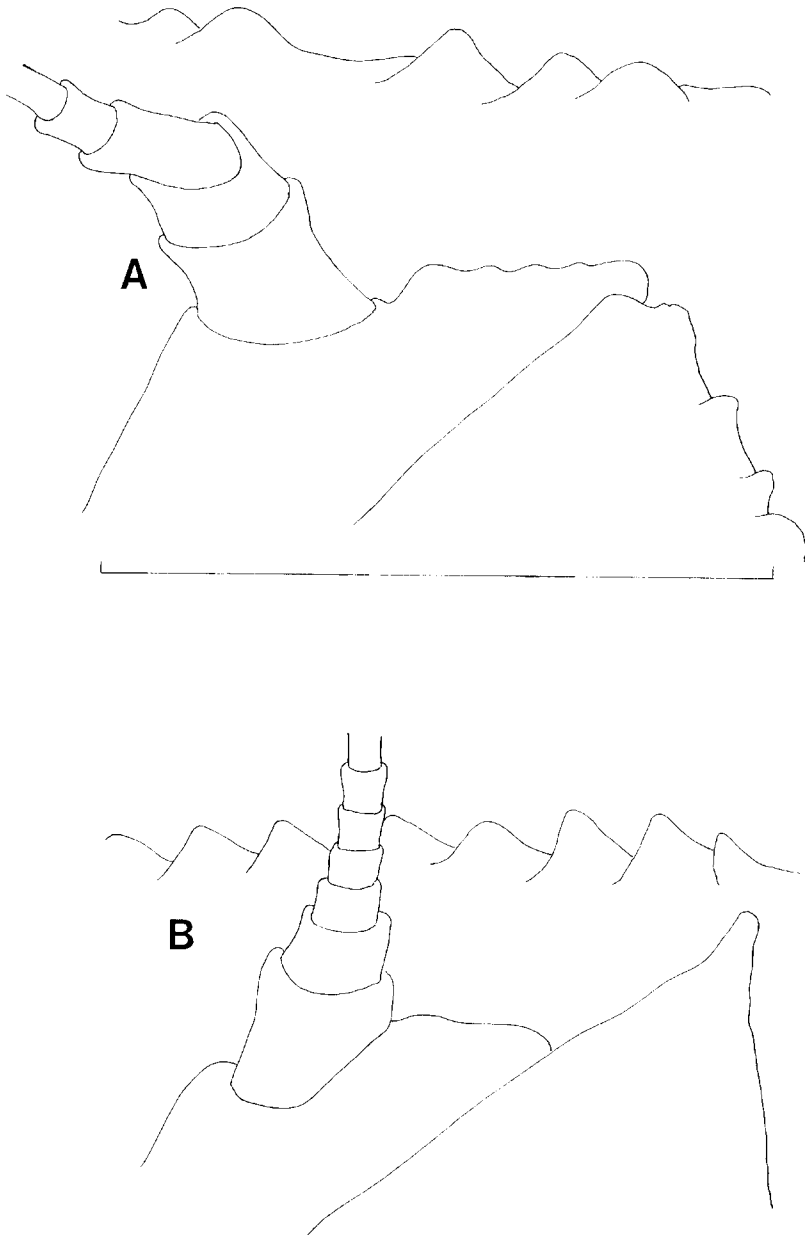


Fig. 5. — Basal antennal segment extension in relationship to the inferior orbital tooth; A, *Tetralia cincipis* Paulson 1986, BM 1986: 1046, ♂; B, *Tetraloides nigrifrons* (Dana 1852), BM 1986: 1045, ♂. Scale bar = 1 mm.

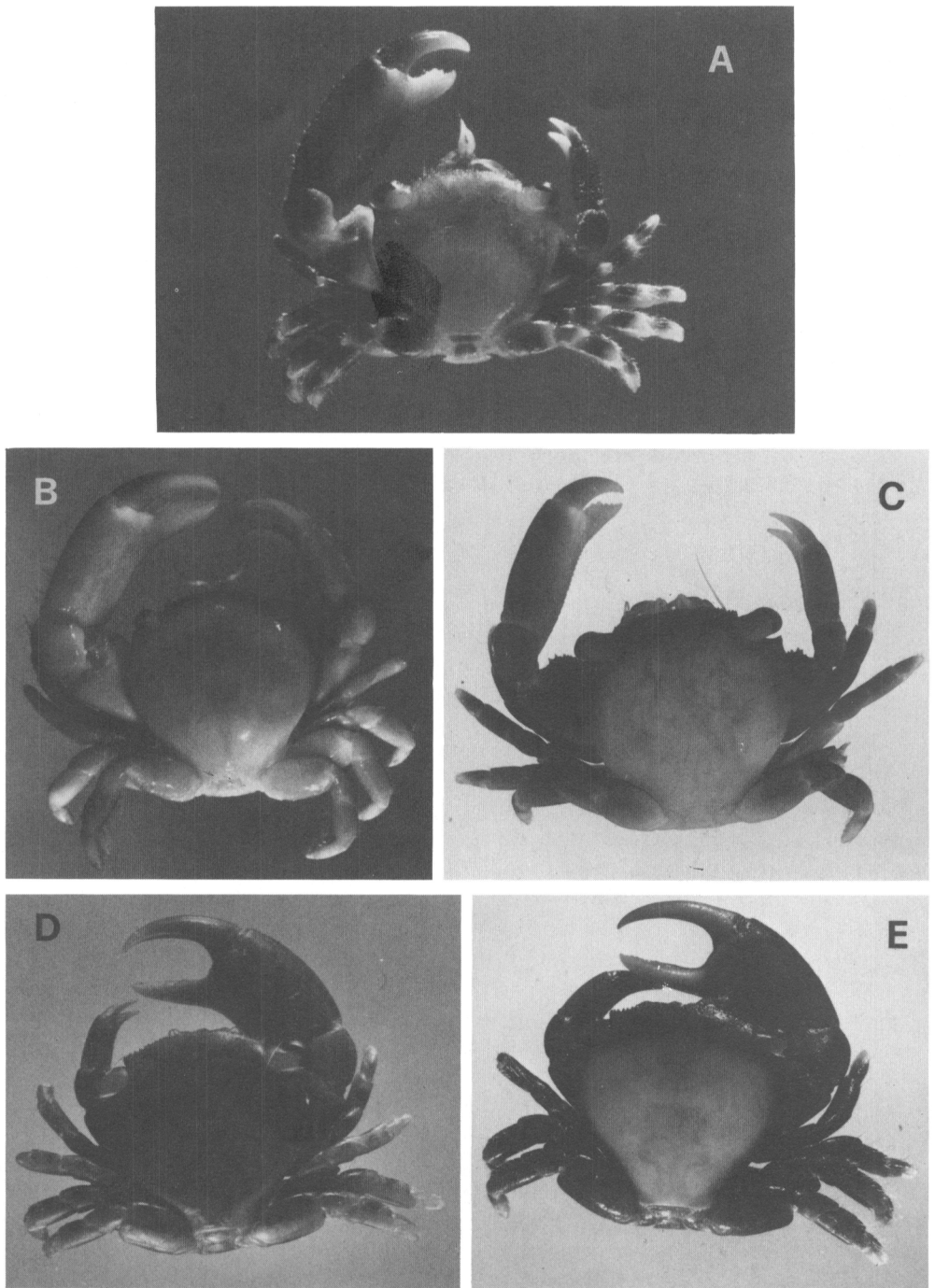


Fig. 6. — A, *Tetralia cinctipes* Paulson 1875, Gesira, Somalia, 1♂ (MF 1260), c.w. 8.2 mm. B, *Tetralia innamorata* n. sp., paratype, Gesira, Somalia, 1♂ (MF 1261), c.w. 11.5 mm. C, *Tetralia vanninii* n. sp., holotype, Gesira, Somalia, 1♂ (MF 1263), c.w. 9.0 mm. D, *Tetraloides heterodactyla* (Heller 1861), Gesira, Somalia, 1♂ (MF 1266), c.w. 7.2 mm. E, *Tetraloides nigrifrons* (Dana 1852), Gesira, Somalia, 1♂ (MF 1267), c.w. 8.9 mm.

BM1986: 1044; Sta.112, Mombasa Is., Kenya 04°04.4'S 39°40.75'E, 27th March 1971, 1♂, 1♀ ovig., BM 1986: 1033; Sta. 114, Mombasa Is., Kenya 04°04.5'S 39°40.4'E, 29th March 1971, 1♂, 1♀, BM, collected A.J. Bruce.

Bamburi Beach, 7 miles north of Mombasa, Kenya, 19-26th November, 1♂, RMNH, collected L.B. Holthuis.

Kilifi Creek, between Mombasa and Malindi, Kenya, 15 m, 20-26th March 1983, 1♀, SMF, collected H. Oebelius.

Seychelles (?), 3♂, 6♀ ovig., BM 1986: 977; collected Capt. H. Rawson. Moyenne Is., Seychelles, 4th August 1971, 1♂, 1♀ ovig., BM 1974: 570; collected N. Polunin.

Dar es Salaam, Tanganyika, 1971-2, 2♂, 2♀ ovig., BM 1973: 114; collected R.G. Hartnoll.

Passe Dubois, Aldabra, 18th October 1967, 1♂, 1♀ ovig., BM 1986: 976; Gros Ilot, Aldabra, 14th November 1967, 3♂, 3♀ ovig., 2 juv., BM 1986: 975; Main Channel, Aldabra, 19th December 1967, 2♂, 3♀ ovig., BM 1986: 974; collected J.D. Taylor.

Material outside area. Poeloe Toekus Is. (= Poelau Tikoes), off Benkoelen, 03°50'S 102°11'E, Sumatra, Indian Ocean, November 1975, 2♂, 2♀, USNM accession No. 87355, collected Kellers.

Description. Holotype ♂; carapace almost quadrilateral in outline; the breadth just exceeding length, lateral margins widely convex with anterio-lateral margin much shorter than postero-lateral margin. No spine or notch marking junction of lateral margins. Dorsal surface polished, naked and smooth without any trace of regions, feebly convex posterior to front. Frontal margin slightly sinuous and finely dentate with pectination larger externally. Supraorbital margin smooth with internal angle consisting of two blunt teeth and continuous with front. Infra orbital margin denticular and internal angle triangular. Thoracic sternum oval, medially sutured anteriorly with margin of first three sternites forming an arcuate triangle. Lower margin of antennular fossa sinuous, first peduncle segment of antenna produced into orbital hiatus with inner distal margin excavate. Anterior margin of buccal frame sinuous and medially notched with a longitudinal ridge defining efferent canal. Distal half of first maxilliped endopod nearly rectangular with anterior margin concave and bearing a few short setae. Exopod of third maxilliped shorter than endopod and tapering distally with triangular tooth on distal inner margin, ischium subrectangular with lateral margins almost parallel with proximal margin obliquely truncate, distal margin concave and an oblique shallow sulcus near the ventral internal margin. Inner distal angle of merus excavate and outer angle rounded with setal fringe on internal angle of dorsal surface. Carpus with setal tuft on distal inner angle of dorsal surface. Dorsal surface of propodus densely setose forming a setal tuft on the distal internal angle. Dactylus terminally setosed. Chelipeds markedly unequal (Fig. 1B). Anterior margin of ischium with an arcuate tooth, distal anterior margin of merus (Fig. 2A) prominently expanded with denticles and rounded posterior margin with crest, carpus globose with a single minute tubercle on internal margin and distal dorsal margin thinly setosed, propodus minutely tuberculate. Larger chela with a setae-filled excavation on dorsal proximal surface, immovable finger with toothed crest, curved dactylus more than 1/3 of prododus length with dorsal surface rounded and ventral margin with few shallow teeth. The inner margins of smaller chela meeting throughout. Merus of pereopods laterally compressed with dorsal margin cristate. Propodus (Fig. 3B) and dactylus of fifth pereopod with medial fringe of long setae. Stocky dactylus (Fig. 4G) short with three discontinuous transverse rows of chitinous spinules on its posterior distal surface and behind cornute tip the dorsal distal surface bears three curved spines. Male abdomen comprised of seven separate somites. Stout male pleopod (Fig. 4B) subtruncate and distally set with fringe of short setae.

Colour in alcohol. Carapace yellow with front and anterior-lateral margins edged with dark brown; merus and carpus of cheliped suffused distally with brown; propodus of cheliped and pereopods uniformly tawny.

Remarks. *T. innamorata* is distinguished from closely related *T. rubridactyla* Garth 1969 by its front, discontinuous from distinct supraorbital angle, uniformly coloured pereopods and tawny dactylus of the cheliped.

Etymology. From the Italian innamorata meaning lover, alluding to the affinity of the crab for the *Acropora* coral.

***Tetralia vanninii* n. sp.** (Figs 1C; 2B; 3C; 4C, H; 6C)

Type material. Holotype: Gesira, 5-10 km south of Mogadiscio, Somalia, X-1981 111: 1♂, c.w. 9.0 mm, collected M. Vannini, MF 1263. Paratypes: Gesira, 5-10 km south of Mogadiscio, Somalia, X-1981 111: 1♀, c.w. 10.3 mm, MF collected M. Vannini, 75/1(g): 1♂, c.w. 5.9 mm, TAU 23104; Sta. 134, Wasin Is., Kenya. 04°39.8'S 39°24.3'E, 5th October 1971, 10♂, c.w. 5.4 mm 4.9 mm 4.8 mm 4.7 mm 4.0 mm 3.2 mm 3.1 mm 3.0 mm 2.8 mm, 3♀, c.w. 5.8 mm 3.5 mm 3.0 mm, 2♀ ovig., c.w. 4.9 mm 4.9 mm, 1♀ + sacculina, c.w. 5.0 mm, BM 1986: 1037, collected A.J. Bruce.

Other material examined. 75/1: 1♂, 6♀ ovig.; X-1979 1: 1♂, 1♀, 4♀ ovig., 1 juv.; X-1979 70: 1♀ ovig.; 45/79: 1♂; 83/3: 5♀ ovig.; 1979/65: 1♀ ovig.; 83/2: 1♀ ovig.; 46/1979: 1♀ ovig.; 1/1979: 1♀ ovig.; 83/31: 1♀ ovig.; 45/1979: 2♀ ovig.; 72/1979: 1♀ ovig.; 3/3 1981: 1♀ ovig.; 65/1979: 1♂; 1/1979 (10): 1♂; 1979/45: 1♂; 75/1: 2♂; 83/3: 5♂; 72/1979: 1♂; 46/1979: 1♂; 45/1979 (2): 1♂; 75/1: 1♀ ovig.; 75/1 (15): 2♂; 70/1979: 1♂; 75/1: 1♂; 1/79: 1♂; 1/1979: 1♂; 38 1979: 2 juv.; Gesira, 5-10 km south of Mogadiscio, Somalia, collected M. Vannini, MF 1265.

Sta. 108, Tiwi, Mombassa, Kenya, 04°14.0'S 38°36.33'E, 28th February 1971, 1♀ + sacculina, BM 1986: 1043; collected A.J. Bruce.

Description. Carapace without trace of regions, nearly quadrilateral in outline with breadth slightly exceeding length, antero-lateral margins somewhat concave and postero-lateral margins widely convex with junction of the lateral margins not marked by a spine or notch, punctuated with microscopic granules behind front. Frontal margin dentate with denticles more prominent externally and median lobes feebly indicated. Front imperceptibly separated from internal denticulate supraorbital angle and with an acute outer orbital angle projecting outwards. Inferior orbital angle granulate and triangular with its apex deflected outward. Oval thoracic sternum medially sutured anteriorly and margins of the first three sternites forming an arcuate triangle. Lower margin of antennular fossa minutely serrated. First peduncle segment of antenna extending into the orbital hiatus and with the inner distal angle obliquely truncate. Anterior margin of buccal frame straight with median notch and raised longitudinal lines at termination of efferent canals. Distal half of first maxilliped endopod nearly rectangular with a concave anterior margin. Exopod of the third maxilliped shorter than endopod and tapering distally with an obtuse triangular tooth on its distal inner margin. Ischium is subrectangular with proximal margin obliquely truncate and distal margin slightly concave, lateral margins almost parallel and an oblique shallow sulcus near the ventral internal margin with a small setal fringe on the dorso-internal margin. Inner distal angle of merus excavate with outer distal angle rounded and lateral margins convex, internal angle of the dorsal surface fringed with setae. Dorsal surface of carpus with setal tuft on distal inner angle. Dorsal surface of propodus densely setose forming a setal tuft on the distal internal angle. Dactylus terminally setose. Chelipeds markedly unequal (Fig. 1C). Anterior margin of ischium

with an arcuated granulate tooth. Rounded posterior margin of merus (Fig. 2B) with crest and anterior margin without foliaceous expansion at distal end but with serrulations that increase distally in size. Granular carpus globose with tuberculate anterior margin. Propodus with a seta-filled excavation on dorsal proximal surface and a rounded, densely granulated dorsal margin with the granules increasing in size on ventral margin forming a serrulate border. Immovable finger with toothed crest on dorsal margin. Dactylus $1/3$ of propodus length with two longitudinal furrows on dorsal margin and a few shallow teeth on ventral margin, finger tips serrulate, however some males with gaping toothless fingers. Granular propodus of smaller chela narrow and sparsely covered with setae, narrow fingers long with their inner margins meeting throughout. Manus of pereopods laterally compressed with a cristate dorsal margin. Propodus of fifth pereopod (Fig. 3C) sparsely fringed on posterior margin with distal setae. Short stocky dactylus (Fig. 4H) decorated on its posterior distal surface with chitinous setae arranged in three discontinuous transverse rows and a few short bands of setae proximally with a sparse median fringe of long slender setae. On the dorsal distal surface, just behind the horny tip, are three curved spines. Short first male pleopod (Fig. 4C) slightly tapered and the distal $2/5$ set with a disordered fringe of setae. Male abdomen composed of seven separate somites.

Colour in alcohol. Carapace yellowish, banded with brown along frontal and antero-lateral margins, frontal band backed by a fine light line, chelipeds and legs uniformly brown. Fingers of larger chela orange-tipped.

Remarks. *Tetralia vanninii* shares with *T. cinctipes* prominent granulation of chelae and short cheliped fingers, both lack a distal crest on the anterior margin of cheliped merus. However, *T. vanninii* is clearly distinguished from the latter by its wider merus of fifth pereopod, anteriorly concave endopod of first maxilliped, and uniformly coloured pereopods.

Etymology. This species is named for Prof. Marco Vannini.

Tetraloides heterodactyla (Heller 1861) (Figs 1D; 3D; 5D, I; 6D)

Tetralia heterodactyla HELLER 1861a: 14 (part); 1861b: 354 (part); PAULSON 1875: 60; GARTH 1964: 140.

Tetralia cavimanus; MIERS 1884: 537 (part).

Tetralia glaberrima; CALMAN 1909: 705 (part).

Tetralia pubescens KLUNZINGER 1913: 316; BALSS 1924: 13.

Tetralia nigriifrons forme *fusca* SERÈNE & DAT 1957: 6, figs 1a, 2 pls 2a, 3a.

Tetralia nigriifrons forme *lissodactyla* SERÈNE & DAT 1957: 14, fig. 3d-f pl. 1.

Tetralia heterodactyla fusca SERÈNE 1959: 153, figs 5c, 6b; GARTH 1969: 185; SERÈNE 1984: 283, pl. 42b.

Tetraloides nigriifrons; GALIL 1986a: 72, figs 1-3, (part).

Material examined. X-1981 2: 2♀ ovig.; X-1979 006: 1♂; 45/1979 (13): 1♀ ovig.; 83/2 5: 1♀; 38/1979: 1♂; 83/3: 2♀ ovig.; X-1979 37: 3♂, 1♀ ovig.; 1979 70: 1♀ ovig.; 83/3 (11): 1♂; 3/6 1981: 1♂; 75/1 (7): 1♀ ovig.; 70 1979 (1) 1♂; X-1979 70: 2♀; 83/3: 1♂; 64 1979: 1♂, 1♀ ovig.; 45 1979: 1♂, 1♀, 1 juv.; X-1979 45: 2♂, 4♀, 2♀ ovig.; 75/1: 3♀ ovig.; 38: 6♂, 1♀, 2 juv.; X-1979 46: 5♂, 4♀, 3 juv.; 70/1979 8: 1♀; X-1979 72 1 15♂; X-1981 111: 1♂, 1♀ ovig.; 3-X-1979 70: 5 juv.; 1/1979: 1♂, Gesira, 5-10 km south of Mogadiscio, Somalia, collected M. Vannini, MF 1266.

Sta. 134, Wasin Is., Kenya, 04°39.8'S 39°24.3'E, 5th October 1971, 1♂, 1♀ ovig.; BM 1986: 1035; Sta. 107, Ras Iwatine, Bamburi, Mombasa, 04°01.3'S 39°44.0'E, 27th February 1971, 1♂, collected A.J. Bruce, BM 1987: 77. Mersa Fijjah, 20°02'N 37°12'E, Sudan, 26th December 1950 1♂, 1♀, coll. Manihine, BM 1987: 78.

Material outside area. Christmas Is., 1908, 1♂, BM 1909.5.19.90, collected C.W. Andrews.

Description. Flattened carapace with regions not defined and dorsal surface weakly granular anteriorly. Anterio-lateral margins of carapace parallel and junction with postero-lateral margin marked by an acute tooth in juvenile specimens (adults lack epibranchial spine), postero-lateral margins markedly convergent. Denticulate frontal margin imperfectly divided into four obsolescent lobes, submedian lobes rounded while outer lobes are shallow with pectination larger externally and continuous to internal supra-orbital angle. Crescentic supra-orbital margin continuous to outer angle and inferior orbital angle spinose in juveniles but triangular and blunt in adults with apex deflected outward. Sinuous margin of antennular fossa granulate. Basal antennal segment granular and extended into middle of orbital hiatus with the inner angle distally excavate. Anterior margin of buccal frame medially incised with two lateral incisions at termination of efferent branchial canals. Exopod of third maxilliped columnar and tapering distally with blunt tooth at internal distal margin. Proximal margin of ischium obliquely truncate and produced, inner distal angle rounded with the lateral margins subparallel and distal margin concave, ventral surface of ischium with shallow longitudinal groove parallel to internal margin. Outer distal angle of merus rounded and inner distal angle truncate with setal tuft. Carpus and propodus with setal tuft on inner distal margin, dactylus with terminal setae. Chelipeds (Fig. 1D) noticeably unequal and most pronounced in males. Anterior margin of ischium with arcuate tooth. Merus rounded and anterior margin granulate. Anterior margin of carpus granulate. Propodus massive and rounded with fine granules, dorsal margin rounded and ventral margin carinate with prominent granules. Dactylus and immovable finger bearing rudimentary teeth on proximal cutting edge; frequently in males fingers smooth and gaping with tips only meeting. Two blunt spines are present on the anterior internal carpal margin of the small cheliped. Propodus (Fig. 3D) with a conspicuously serrate ventral margin and fingers meeting throughout. Merus of pereopods laterally compressed and dorsal margin carinate. Propodus distally furnished with spinules. Stocky dactylus (Fig. 4I) medially grooved on ventral surface with hoof-like cornute tip, inferior distal surface with three discontinuous transverse rows of short spines and distally on dorsal surface are several stout cornute spines. Sinuous first male pleopod (Fig. 4D) tapering distally and reaching the apex of the terminal abdominal somite. Seven separate abdominal somites in male.

Colour in alcohol. Carapace tawny, somewhat lighter posteriorly, in juveniles carapace yellowish with a diffuse dark band anteriorly; pereopods brown with dark dorsal spots on dorsal surface.

Remarks. *Tetraloides heterodactyla* (Heller) differs from *T. nigrifrons* (Dana) in having a wider carapace, posterior manus margin of smaller chela markedly serrate and carapace tawny, pereopods brown with dark spots as opposed to the cream-coloured, dark-fronted carapace and white-spotted pereopods of *T. nigrifrons*.

The extensive Somalian collections, which Prof. M. Vannini has kindly made available, contain large series of specimens which have retained their colour, thus facilitating differentiation of *T. heterodactyla* from the closely allied *T. nigrifrons*. The inclusion of *T. heterodactyla* within *T. nigrifrons* by GALIL (1986a) was due to the close morphological similarity of the adults and to the colour pattern of young *T. heterodactyla*, i.e. light coloured carapace with dark front, being intermediate between the two species.

T. heterodactyla was described by HELLER (1861a, 1861b) from the Red Sea, «Die Körperfarbe ist braunlichroth, die Unterseite der Scheeren sowie die Finger etwas lichter gefarbt». *Tetralia pubescens* of KLUNZINGER (1913) was redetermined by GALIL (1986a) as *T. nigrifrons*, but is here assigned to *T. heterodactyla* on the basis of KLUNZINGER's (p. 316) colour description, «braunschwarz, hinten, besonders bei Jungeren, etwas heller, untere Hälfte der Hand und unterer Scherenfinger heller. Gelenke der Schreitfusses im Leben himmelblau schimmernd.» BALSS' specimens (1924) from the Red Sea are similarly reassigned to *T. heterodactyla*.

***Tetraloides nigrifrons* (Dana 1852) (Figs 1E; 3E; 4E, J; 5B; 6E)**

Tetralia nigrifrons DANA 1852a: 83; 1852b: 262; 1885: pl. 16, fig. 2; A. MILNE EDWARDS 1873: 272; GALIL 1986a: 72, figs 1-3 (part).

Tetralia glaberrima; ORTMANN 1897: 209 (part); NOBILI 1906: 143 (part); RATHBUN 1907: 60 (part); CALMAN 1909: 705 (part).

Tetralia heterodactyla heterodactyla GARTH 1969: 185.

Material examined. 83/2 W: 1♂; 70/6 I: 1♂; 75/1: 2♀ ovig.; X-1981 45 17/5-8: 1♂; 1♀ ovig.; 05/1979 11: 1♂; 83/3: 1♂, 1♀ ovig.; 111/11 1981: 1♂; X-1981 111: 2♂; Aug. 1980: 2♂, 2♀; 83/31: 1♀; Gesira, 5-10 km south of Mogadiscio, Somalia, collected M. Vannini, MF 1267.

Sta. 106 Ras Iwatine, Bamburi, Mombasa, 04°01'S 39°44.6'E, 26th February 1971, 1 juv., BM 1986: 1040; Sta. 108, Tiwi, Mombasa, Kenya, 04°14.0'S 38°36.33'E, 28th February 1971, 1♂, 1♀ ovig., BM 1986: 1032; Sta. 108, Tiwi, Mombasa, Kenya, 04°14.0'S 38°36.33'E, 28th February 1971, 1♂ + sacculina, BM 1986: 1032; Sta. 109, Tiwi, Mombasa, Kenya, 04°15.9'S 38°36.1'E, 1st March 1971, 1 gynandromorph, Sta. 112, Mombasa Is., Kenya 04°04.4'S 39°40.75'E, 27th March 1971, 1♂, BM 1986: 1036; Sta. 114 Mombasa Is., Kenya, 04°4.5'S 39°40.4'E, 29th March 1971, 1♂, 1♀, BM 1986: 1045; collected A.J. Bruce.

Material outside area. Christmas Is., 1908, 3♂, 1♀, 1♀ ovig., BM 1909.5.19.86-89, collected C.W. Andrews.

Coral associations

A.J. Bruce sampled the corals with which the trapezid crabs were associated. These corals were identified by Dr Brian Rosen. For a list of trapeziid species and their *Acropora* host see Table 1.

KEY TO EAST AFRICAN ACROPORA-INHABITING TRAPEZIIDS

- 1 Basal antennal article (Fig. 5A) reaching orbital margin. Tomentose pit at dorsal proximal surface of large cheliped propodus (Figs 1A-C). Propodus of fifth pereopods with fringe of long setae (Figs 3A-C) *Tetralia* 2
- Basal antennal segment (Fig. 5B) extending to middle of inferior orbital tooth. Outer surface of larger cheliped propodus without tomentose pit (Figs 1D, E). Propodus of fifth pereopods lacks setal fringe (Figs 3D, E) *Tetraloides* 4
- 2 Anterior margin of cheliped merus crested, distally expanded and denticulate (Fig. 2A). Chela finely tuberculate (Fig. 6B) *Tetralia innamorata* n. sp.
- Anterior margin of cheliped merus rounded and serrulate but lacks distal foliaceous expansion (Fig. 2B). Chela densely granulose, fingers short 3
- 3 Meri of fifth pereopods more than half as wide as long. Pereopods uniformly brown (Fig. 6C) *Tetralia vanninii* n. sp.
- Meri of fifth pereopods less than half as wide as long. Brown pereopods banded with white (Fig. 6A) *Tetralia cincipes* Paulson 1875

- 4 Propodus ventral margin of small cheliped prominently serrulate. Carapace tawny and pereiopods brown with dark spots on dorsal surface (Fig. 6D)
Tetraloides heterodactyla (Heller 1861)
- Propodus ventral margin of small cheliped tuberculate. Carapace cream-coloured with dark front and brown pereiopods with white spots (Fig. 6E)
Tetraloides nigrifrons (Dana 1852)

Table 1.

List of trapeziid species and host *Acropora* collected by A.J. Bruce.

<i>Acropora (Acropora) cytherea</i> (Dana 1846)		
Station		
106		<i>Tetralia inmanorata</i>
		<i>Tetraloides nigrifrons</i>
107		<i>Tetralia inmanorata</i>
108		<i>Tetralia vanmii</i>
109		<i>Tetralia inmanorata</i>
114		<i>Tetralia inmanorata</i>
<i>Acropora (Acropora) divericata</i> (Dana 1846)		
107		<i>Tetralia cinctipes</i>
108		<i>Tetraloides nigrifrons</i>
109		<i>Tetralia inmanorata</i>
112		<i>Tetralia inmanorata</i>
		<i>Tetraloides nigrifrons</i>
134		<i>Tetralia cinctipes</i>
		<i>Tetralia vanmii</i>
		<i>Tetraloides heterodactyla</i>
<i>Acropora (Acropora) latistella</i> (Brook 1892)		
114		<i>Tetraloides nigrifrons</i>

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