STUDIES ON THE FAUNA OF CURAÇAO AND OTHER CARIBBEAN ISLANDS: No. 149.

TERRESTRIAL ISOPOD CRUSTACEANS (ONISCOIDEA) MAINLY FROM THE WEST INDIES AND ADJACENT REGIONS

1. Tylos and Ligia

by

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Tylos marcuzzi	Virginia Key, South Bimini, St. Eustatius, Margarita	Fig. 112–121
Tylos niveus	Andros, Tobago, Bonaire, Klein Bonaire, Klein Curaçao, Curaçao	
Tylos wageneri	St. Martin, Tobago, Margarita	
Ligia baudiniana	South Florida, North Bimini, St. Johns, Tobago, Trinidad, Bonaire, Aruba	Fig. 122–123
Ligia exotica	North Carolina, Florida	Fig. 124–125
Ligia olfersii	Virginia Key	Fig. 126–127
Ligia platycephala	Trinidad	Fig. 128

ABSTRACT

Species of the genera *Tylos* Latreille and *Ligia* Fabricus from the New World are recorded and knowledge of their distribution and systematics is summarized. *Tylos marcuzzii* Soika is redescribed with new illustrations. *Ligia callani* Collinge is reduced to a synonym of *L. platycephala* Van Name. New distribution records in the Caribbean and other regions are given for species of the two genera.

The species of *Tylos* Latreille from the marine shores of the New World were reviewed by SCHULTZ (1970). LEMOS DE CASTRO kindly sent me word that *Tylos marcuzzii* Soika (1954) had been described from the Isla de Margarita off the north coast of Venezuela, and he stated that there were specimens of the species from Bimini, Bahamas, in the uncatalogued collection in the American Museum of Natural History. The following account contains a short description

and illustrations based on those specimens and on others from Florida, St. Eustatius and Aruba. Locality and ecological data for other species of *Tylos* from the New World are included here to bring the published information on the genus up-to-date. The species of the genus *Ligia* Fabricius from the marine shores of the West Indies and adjacent locations are also reviewed. *Ligia platycephala* Van Name from wet situations inland is also included. New distribution records and some ecological observations are included for a total of four species of *Ligia*.

The author wishes to thank Dr. P. WAGENAAR HUMMELINCK for sending him many of the specimens cited here, and for many more specimens of terrestrial isopods from the West Indies and adjacent regions which shall be the subject of later papers on isopod crustaceans. The papers shall include additional data on isopods of the region obtained from material in the collections of the American Museum of Natural History, the National Museum of Natural History (Smithsonian Institution) and other collections made available to me from other sources.

The collection numbers with three numbers (a few have four) are from Dr. HUMMELINCK's collection, and more data on the individual locations can be obtained by referring to his publications (1940a, b; 1953). Those which are from HUMMELINCK's collection, but which have no number, are prefaced by HNN (Hummelinck No Number). Those with AMNH are from the collection of the American Museum of Natural History, and those with USNM are from the National Museum of Natural History. Specimens from the author's collection or which have come to his attention from other sources are prefaced by GAS.

Tylos marcuzzii Soika

Figs. 112–121

Tylos latreillei Audouin. – VANDEL, 1952, p. 72.
Tylos marcuzzii SOIKA, 1954, p. 89, fig. 10–1.

The species was briefly described and the lateral aspect of the peraeon was illustrated by SOIKA. VANDEL (1952) described the species from Puerto Fermin, Isla de Margarita, Venezuela, as *Tylos latreillei*. He stated that it differed from the European members of that species in that the underparts of pleon 5 were thinner and shorter than those of *T. latreillei*. VANDEL did not mention the

nature of the configuration of the lateral margins of the pleons and peraeons. They were used by SOIKA as criteria to set the species apart from *T. latreillei*. Both criteria, the lengths of the underparts of pleon 5 and the configuration of the lateral margins of the peraeons can be used to set the species apart from other members of the genus as well.

The curved underparts of pleonal segment 5 are much wider in *T. latreillei* than in *T. marcuzzii*. They are narrow never becoming much thicker distally and with acutely rounded or pointed ends in *T. marcuzzii*. In *T. latreillei* they are either broadly rounded or squarish and they get somewhat broader distally (VANDEL, 1960, p. 109, fig. 48). There also is more space between the two bilateral tips in *T. marcuzzii* when compared to that of *T. latreillei* because the underparts are shorter in *T. marcuzzii*. Other distinguishing features between the two species are present in the configurations of the posterior borders of pleon I and of peraeon V. The posterior border of pleon I is recurved in *T. marcuzzii*, whereas, it is straight in *T. latreillei* (compare Fig. 112 and SCHULTZ, 1970, p. 299, fig. 12). The posterior border of peraeon V including the epimere in *T. latreillei* is relatively straight when compared to that structure in *T. marcuzzii*. In *T. marcuzzii* the posterior edge of the epimere is broadly rounded and it extends well beyond a line extended laterally from the posterior margin of the peraeon proper.

The two species are definitely distinct just on the differences between the lateral margins of the pleons and peraeons. However, it is necessary to know the configuration of the curved underparts of pleonal segment 5 because that character is used to distinguish *T. marcuzzii* from other species of *Tylos* from the New World.

Tylos marcuzzii Soika is probably more widespread in the West Indies and adjacent regions than the collection records indicate. The species perhaps can be commonly found between Bimini and Margarita, the northern and southern most records of its known range. *Ligia olfersii* was taken at Virginia Key, Florida, near to where *T. marcuzzii* was taken.

In addition to the type-locality on Isla de Margarita, other collection locations for *T. marcuzzii* are as follows:

VIRGINIA KEY (Florida). 689, Laboratory beach, sand with some plant decay, 4.IX.1963, 1 spec.

SOUTH BIMINI (Bahamas). AMNH Ac. No. 7451, VI.1961, 16 spec.

ST. EUSTATIUS. 433, Concordia Bay, sandy beach, decaying algae, 8.VII.1949, many small spec.; 433a, Concordia Bay, among algal decay on sand, 10.X.1963, many small spec.

Tylos niveus Budde-Lund

Tylos niveus Budde-Lund. – SCHULTZ, 1970, p. 302, figs. 1–6.

Specimens of *T. niveus* were obtained from the shores of the islands of Bonaire, Klein Bonaire, Curaçao, Klein Curaçao,Tobago and the Bahamas. The species previously has been recorded from south Florida to Rio de Janeiro, Brazil (SCHULTZ, 1970) and the range includes the locations mentioned here. *Ligia baudiniana* was taken with *T. niveus* at Bonaire (180a).

The new locations for *T. niveus* are as follows:

ANDROS (Bahamas). USNM, Mangrove Cay, 1 spec.

TOBAGO. 583, Rockley Bay, sandy decay on rocky beach, 20.I.1955, with *T. wageneri*, 1 spec.

BONAIRE. 180a, Cay, entrance of Lac, sandy leaf decay of *Avicennia*, with *L. baud.* 1.IX.1948, 7 spec. – 556, Lagoen, beach decay on sandy rock debris, 2.III.1955, 2 spec. – 873, Playa Palu Calbas, Lac, wet leaf decay of *Rhizophora*, 5.IX.1967, 15 spec.

KLEIN BONAIRE. 806, N. shore, sandy leaf decay of *Bontia*, 3.XII.1963, 2 spec.

KLEIN CURAÇAO. 321, E. shore, decaying algae on sandy debris, 1.X.1948, 2 spec.

CURAÇAO. 815, Fuik Baai, coral debris with *Laguncularia*, 17.XI.1963, many spec. – 820, Boca Grandi, Savonet, sandy leaf decay of *Hippomane* near sea, 19.XI.1963, 1 sp. – HNN, Piscadera Baai, Carmabi, at light, 24.X.1963, 1 spec.

Tylos wageneri Vandel

Tylos wageneri VANDEL, 1952, p. 74, figs. 4–10.
Tylos wagneri (*sic*) Vandel. – SCHULTZ, 1970, p. 304, figs. 28–30.

Specimens of *T. wageneri* were collected previously on Margarita, off northern Venezuela. Additional specimens were taken there and at Tobago and at St. Martin in the Lesser Antilles. The known range of the species is thus extended to the west and to the north. A male 23 mm long was collected at Philipsburg, St. Martin, which is longer than the longest specimen (18 mm) recorded by VANDEL (1952).

The new locations are as follows:

ST. MARTIN. 467 b, St. Peter, Cul-de-Sac, former slob of Agr. Exp. Garden, muddy plant decay, 2.X.1963, 1 spec. – 711, Great Bay, sandy debris on NE. shore, 16.X. 1963, 1 spec. – HNN, Philipsburg, on road near shore, at light, 28.IX.1963, many specimens.

TOBAGO. 583, Rockley Bay, sandy decay on rocky beach, 20.I.1955, with *T. niveus*, 3 spec.

MARGARITA. 800, Punta Mangle, sandy beach, 10.I.1964, 2 spec. – 801, Punta de Piedras, sandy beach near Estación, 13.I.1964, 1 spec.

Tylos punctatus punctatus Holmes & Gay

Tylos punctatus punctatus Holmes & Gay, 1909. – SCHULTZ, 1970, p. 300, figs.7–11.

The species, from northern Mexico and southern California, was not collected, but there has been much work done on the ecology of the species. HAMNER, SMYTH & MULFORD (1968) demonstrated that the species could "orient to beach slopes as small as 1°. It moves uphill when the substrate is wet, downhill when it is dry." Later (1969) they studied the life history of the species. HAYES (1970a) studied the accuracy of pitfall trapping methods used for a study of the population dynamics, and he also determined the copper content of specimens (1970b).

Ligia (Hirtiligia) baudiniana Milne Edwards

Figs. 122–123

Ligia (Hirtiligia) baudiniana Milne Edwards, 1840. – VAN NAME, 1936, p. 58, fig. 14. – VANDEL, 1952, p. 80. – MULAIK, 1960, p. 96, pl. II figs. 17, 19. – ROUSE, 1969, p. 135. – SCHULTZ, 1972, p. 84, fig. 2 G–J.

The species has been collected over most of the Atlantic coast of the Americas from Florida (ROUSE, 1969) and Bermuda (SCHULTZ, 1972) south to Brazil (VAN NAME, 1936). MULAIK (1960) recorded the species from Veracruz, Yucatán and Baja California. VAN NAME also recorded it from the west coast of South America including the Galápagos. The specimens in the American Museum of Natural History were examined and confirmed by myself to be specimens of *L. baudiniana*. VANDEL (1968) records its presence in the Galápagos, but he examined no specimens. The author collected specimens from the west coast of Costa Rica, near Puntarenas. The author also has specimens collected from off the east coast of Panamá at Holland Cay, near the Atlantic entrance to the Panama Canal. It is here recorded from Bimini, Virgin Islands, Aruba, Bonaire, Trinidad, Tobago and Dominica in the West Indies.

The species is best told from others of the genus by the configuration of the distal end of male pleopod 2. There is a long thin process extending beyond the slightly swollen apex on pleopod 2 which is not present on the apex of the pleopod of other species from the New World. The configuration of the posterior border of the pleotelson (Fig. 122) is also characteristic. Large males have a well developed setal row bordering the file-like inner margin of the propodus and carpus of peraeopod I (Fig. 123). The setal row generally is indistinct or absent on small male specimens. On peraeopod II of the male there is also a fine file-like ridge on the carpus which is like that on peraeopod I. Specimens to 25 mm long were collected in Florida.

Tylos niveus was present in the same general habitat on Bonaire (180a) with *L. baudiniana*.

The locations where the species was collected are as follows:

FLORIDA. GAS, Coot Bay Pond, Everglades Nat. Park, 12.VII.1966, several spec., 1 ♂ = 25 mm long.

NORTH BIMINI (Bahamas). 1151, Laboratory dock, tidal zone of muddy lagoon, 20.VIII.1949, 1 ♂.

ST. JOHN (Virgin I.). AMNH 13172, Frank Bay, tidal pool, 4.III.1965, 1 ♂.

TOBAGO. 1388, Red Point, SW of Scarborough, tidal zone of rocky shore with sandy debris, 14.I.1955, 1 ♂.

TRINIDAD. 790, Los Gallos Point, sandy beach debris, 16.I.1964, 2 ♂♂, 1 ♀.

BONAIRE. 180a, Cay, entrance of Lac, sandy leaf decay of *Avicennia*, 1.IX.1948, 2 ♂♂, 1 ♀, several juv.; 180b, Cay, near 180a, 16.XI.1948, 6 ♂♂, 1 ♀. – 308, Lagoen, decay on sandy mud with leaves of *Rhizophora*, 14.IX.1948, 1 ♀. – 315, Goto, near

seepage of sea water into salt lake, decay of *Ephydra*-pupae on coral pebbles at water edge, 22.II.1949, 5 ♂♂, 7 ♀♀. – 874, Boca Pedro, Lac, leaf decay of *Rhizophora*, 4.IX.1967, 1 ♀. – 875, Isla Juwana, Lac, decay of *Rhizophora* on limestone, 13.VIII. 1967, 12 ♂♂, 5 ♀♀. – 880, Cay, sandy leaf decay of *Rhizophora*, 16.IX.1967, 7 ♂♂, 9 ♀♀. – 888, Pos Palu Grandi, Lac, 13.VIII.1967, 1 ♂, 2 ♀♀.

ARUBA. 262B, Spaans Lagoen, debris in abandoned *Aloe*-field near shore, 1.I.1949, 1 juv. – 278B, Bucuti reef, sandy leaf decay on coral debris, 21.X.1967, 1 ♀ (37 embryos). – 361, Spaans Lagoen, leaf decay of *Rhizophora* on muddy rock debris, 1.I.1949, 1 ♂, 5 ♀♀. – 363, Bucuti reef, wet leaf decay of *Rhizophora* on sandy coral debris, 17.I.1949, 1 juv. – 364, Bucuti reef, decay of *Thalassia* and algae on sandy debris, 17.I.1949, 20 ♂♂, 27 ♀♀, 174 juv.

Ligia (Megaligia) exotica Roux

Figs. 124–125

Ligia (*Megaligia*) *exotica* ROUX, 1828 – VAN NAME, 1936, p. 46, figs. 5c, 8. – 1940, p. 134. – VANDEL, 1952, p. 80. – MULAIK, 1960, p. 95, pl. I figs. 11, 14, 16, pl. II fig. 18. – ANDERSSON, 1960, p. 540, figs. 1k, 1. – ROUSE, 1969, p. 135. – SCHULTZ, 1972, p. 84, fig. 2 K–L.

The species is present on the Atlantic coast of North America from New Jersey (USNM 64460) to Montevideo, Uruguay (USNM 43668). The range of the species extends further north and further south into the temperate regions when compared to the distribution of *L. baudiniana*. It apparently is rare in the true tropics and was not recorded in the West Indies proper in this study. The species is sometimes included in records from the Pacific shores of the Americas, but all specimens listed as *Ligia exotica* from Pacific shores in the National Museum of Natural History were examined by myself and found to be specimens of *Ligia occidentalis* Dana. The exclusively Pacific shores species has a similar process on the carpus of male peraeopod I as is present on males of *L. exotica*.

Ligia exotica is best told from *L. olfersii* (also in the subgenus *Megaligia*) by the lack of the process on male peraeopod I (Fig. 125) and by other criteria mentioned here under that species. A large male 28.5 mm long was taken by the author along with many other

specimens at Beaufort, North Carolina. According to VAN NAME (1936, p. 49) the species is "undoubtedly of Old World origin."

The species was collected at the following locations:

NORTH CAROLINA. GAS, Beaufort and environs, 1963–64, many specimens in many collections (1 ♂ 28.5 mm long).

FLORIDA. GAS, Jetty mouth St. Johns River, 4.IX.1965, many. – GAS, Biscayne Bay, near Rickenbacker Causeway, 1 ♂, 5 ♀♀.

Ligia (Megaligia) olfersii Brandt

Figs. 126–127

Ligia (*Megaligia*) *olfersii* Brandt, 1833. – VAN NAME, 1936, fig. 11. – MULAIK & MULAIK, 1942, p. 3.

VAN NAME (1936) stated that the species is present from south Florida to Rio de Janeiro, Brazil, and on the west coast of Africa also. MULAIK & MULAIK (1942) collected numerous specimens at Corpus Cristi, Texas. The species is recorded here from Virginia Key, Miami, Florida. The species is similar to *L. exotica*, but it lacks the process on the distal part of the carpus on male peraeopod I which is present in *L. exotica*. Paraeopod I of the male of *L. olfersii* is shown in Figure 127. The posterior margins of the pleotelsons are also slightly different in the two species (Cf Figs. 124 and 126).

A series of specimens ought to be examined to see if the distinctions between the two species can still be maintained. The ranges of the two species completely overlap on the Atlantic coast of the Americas. VANDEL (1952, p. 63) stated that *L. filicornis* Budde-Lund, 1893, from Venezuela might be also a synonym of *L. olfersii*.

Tylos marcuzzi was present on Virginia Key, the only location where *L. olfersii* was collected in this study.

VIRGINIA KEY (Florida). 689, Laboratory beach, sand with some plant decay, 4.IX.1963, 1 ♂, 5 ♀♀.

Ligia (Pogonoligia) platycephala Van Name

Fig. 128

Ligyda platycephala VAN NAME, 1925, p. 497, figs. 67–71.
Ligia (Pogonoligia) platycephala Van Name. – VAN NAME, 1936, p. 61, figs. 5f, 16, 17.
VANDEL, 1952, p. 82, figs. 11A–C, 12A, B.
Ligia callani COLLINGE, 1946, p. 140, figs. 1–5.

The species was described originally from Kartabo, Guyana, by VAN NAME (1925). Many specimens from localities in Guyana, including the type-specimen, are present in the collection of the American Museum of Natural History. The type-specimen has the identical serrated pattern (Fig. 128) on the posterior margin of the pleotelson as on the pleotelson of the specimens collected in Trinidad. The specimens were not dissected, but they appeared to be identical in every other manner when compared to the type-specimen. VANDEL (1952) collected specimens from Porlamar, Isla de Margarita, Venezuela, which he illustrated (p. 82, figs. 11A–C, 12A, B).

COLLINGE (1946) described *L. callani* from the mountains of Trinidad. Illustrations of his specimens which do not go into detail in no way differ from illustrations of *L. platycephala* as described by VAN NAME (1925, p. 497, figs. 67–71). COLLINGE mentioned *L. platycephala* in another contex in his work, but he did not make any comparative statements to demonstrate how his specimens differed from other species of *Ligia* including *L. platycephala*. The specimens examined here, also from Trinidad, show that *L. callani* Collinge is a junior synonym of *L. platycephala* Van Name. VANDEL (1972) demonstrated that the isopod fauna of Trinidad is similar to that of the nearby mainland because the island in the not too distant geological past was part of the mainland.

The specimens were taken inland at only one location on the floor of the forest in a damp habitat like that of other species of the subgenus *Pogonoligia*.

TRINIDAD. 572, Cerro del Aripo, Northern Range (600–800 m), rock debris with plant decay, 30.I.1955, 1 ♂, 4 ♀♀, 4 juv.

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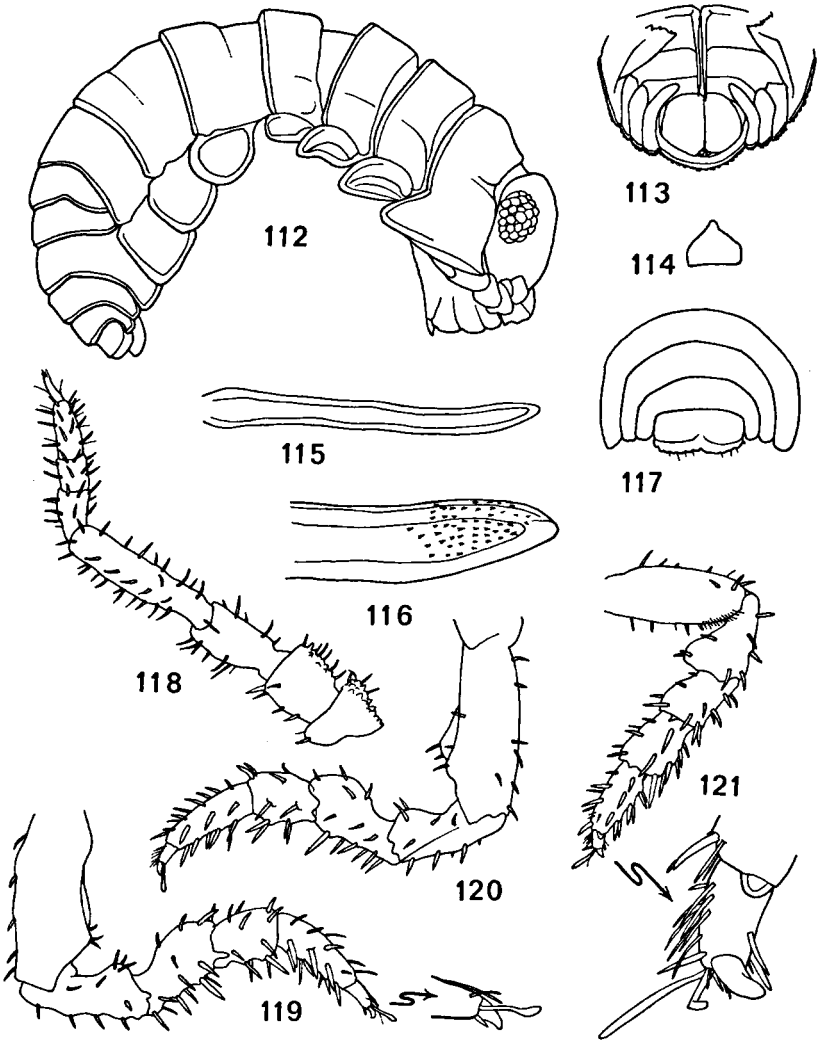
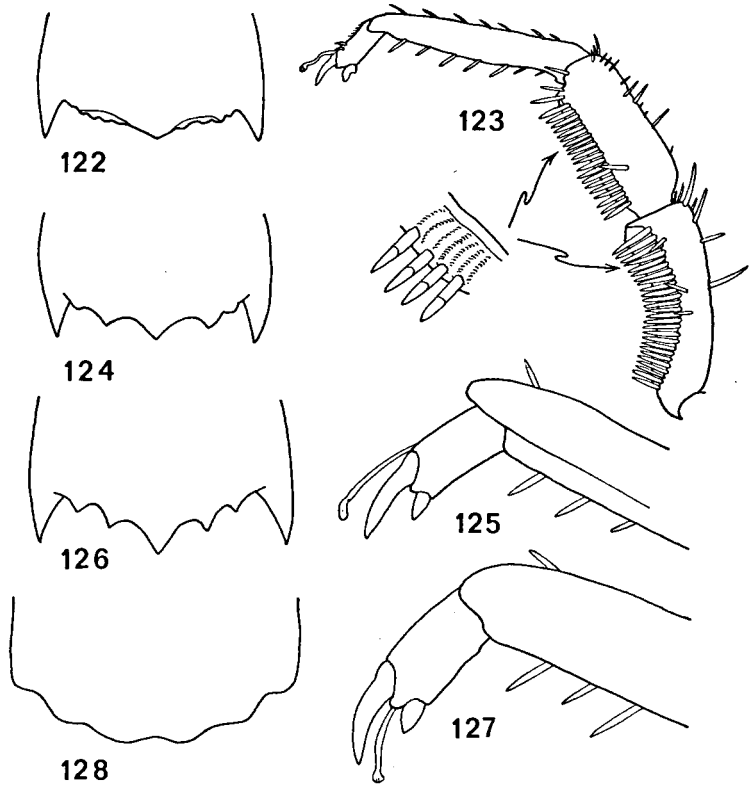


Figs. 112–121. *Tylos marcuzzii* Soika, male 6.6 mm long. – 112, lateral view. 113, ventral view posterior part. 114, frontal lamina. 115, endopod male pleopod 2. 116, detail apex male pleopod 2. 117, posterior view. 118, antenna 2. 119, peraepod VII inner aspect. 120, peraeopod VII outer aspect. 121, peraeopod I with detail of dactylus.



Figs. 122–128. *Ligia* spp. – 122, pleotelson *L. baudiniana*. 123, peraeopod I *L. baudiniana*. 124, pleotelson *L. exotica*. 125, peraeopod I *L. exotica*. 126, pleotelson *L. olfersii*. 127, peraeopod I *L. olfersii*. 128, pleotelson type-specimen *L. platycephala*.