

STUDIES ON THE FAUNA OF CURAÇAO AND OTHER  
CARIBBEAN ISLANDS: No. 190

STYGIOMYSIS HOLTHUISI FOUND ON ANGUILLA  
(Crustacea: Mysidacea)

by

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One of the most remarkable stygobiont mysids was originally described and figured by GORDON (1958) from specimens caught in an anchialine sink-hole in the Netherlands Antillean part of St. Martin, under the name of *Rhopalonurus holthuisi*, n.g. and sp. The combination of characters found in this animal induced the author to consider "that it cannot be placed in any of the known orders of the Peracarida as at present defined. It seems to be most nearly related to the Mysidacea but it is certainly not a mysid". The same author realized later on that the crustacean from St. Martin is in fact a species of mysid undoubtedly belonging to the genus *Stygiomysis* Caroli, 1937 (proposed for the stygobiont *S. hydruntina* from two caves in Terra d'Otranto, Italy); a detailed illustrated description of the Antillean species followed (GORDON 1960). Later, *S. holthuisi* was also discovered in two caves on Puerto Rico, and BOWMAN (1976) gave a short redescription emphasizing that the Puerto Rican specimens differ in a few details from GORDON's account; however, he still considered them to be conspecific with the St. Martin specimens. In the same paper, a new species from Jamaica was described, *S. major* Bowman, 1976. Thus the family Stygiomysidae Caroli now comprises an Italian and two Antillean species.

During their biological explorations of the Antilles, dr. P. WAGENAAR HUMMELINCK (Utrecht) and prof. dr. J. H. STOCK (Amsterdam) discovered

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*S. holthuisi* also on *Anguilla*, lying on the same bank, 7½ km north of St. Martin. The material consists of 3 perfectly preserved ♀♀.

One of them (length 6 mm) was caught by STOCK (19.IV.1978) by means of a Čvetkov net in a natural crevice (called Salt Well) of the limestone plateau. The water body (chlorinity 4920 mg/l) received daylight and a growth of filamentous algae was observed. Besides the mysids some ostracods, *Metaniphargus* and *Typhlatya* were found. – The two other specimens (3.5 mm and 4.2 mm long) were collected by STOCK (19.IV.1978, 1480 mg Cl/l) and by WAGENAAR HUMMELINCK (1.VII.1973, 790 mg Cl/l), in a pool of a dark cave (called The Fountain). It is a rather large water body, stagnant and clear; the mysids were accompanied by Cyclopidae, *Metaniphargus* and *Typhlatya* (cf. WAGENAAR HUMMELINCK 1979, p. 165–168).

The present author studied all specimens but dissected only the largest one (from Salt Well). Unwilling to compare only with the available descriptions, he dissected also a ♀ from the type-locality: Devils Hole, St. Martin (coll. Stock, 16.IV.1978). This ♀ is 9.3 mm long, being the largest known specimen of *S. holthuisi* (Fig. 32).

The specimens found on *Anguilla* agree generally very well with the description and figures made by GORDON from the St. Martin specimens. The characteristic spiny armature of the telson is identical. The number of flagellar segments is, in the dissected *Anguilla* specimen, 14–15 and 25 for antenna I, and 25 for antenna II. The number of segments for the exopodal flagella of the thoracic appendages, is 10 for II and III, 11 for IV, 10 for VIII. On the internal face of segment IV of the endopodites there are 6 strong spines in II, 4 in III, 3 in IV. There is a perfect agreement in the number of serrated spines on the ventral margin of segment 5 of the endopodites of the thoracic appendages V – VIII. The right mandible, though agreeing generally very well with the descriptions, has (*Anguilla*) a very well-developed “subsidiary tooth” of the incisor, so that it may be described as four-cuspid. The left mandible was not described or figured by GORDON; I include here a drawing of it (Fig 33): it is identical in specimens from the three islands.

In several cases, I observed differences when comparing the *Anguilla* specimens with the description and figures of GORDON, but comparison with the St. Martin specimen showed that they are in fact illusory. GORDON (1960) writes that only the 2 *long* apical setae of the proximal endite of the maxilla I are plumose, but as actually all 4 of them are plumose (St. Martin & *Anguilla*). In observing the maxilla II, in an *Anguilla* (Fig. 34) as well as in a St. Martin (Fig. 35) specimen, I was surprised to find that the

endopodite is clearly three-segmented; it was described and figured as two segmented by all authors writing on *Stygiomysis*, and I am almost sure that it has always been considered as such in all Mysidacea. It is thus well possible that the three-segmented endopodite of the maxilla II is one of the highly characteristic features of *Stygiomysis holthuisi* (possibly also of the genus). Dr. THOMAS E. BOWMAN (Washington) was kind enough to re-examine, at my request, the maxilla II of one of his Puerto Rico specimens: he found the same segmentation of the endopod as described and figured here. The chaetotaxy of the thoracopods II–IV – for instance that of the propods – was a bit too parsimoniously figured by GORDON. Setae and spines are in fact more numerous, longer, and stronger (Anguilla & St. Martin); the correct situation is shown in BOWMAN's fig. 37 (*S. holthuisi* from P. Rico). The same is true for the pleopods: for instance, the endopodite of pleopod II ♀ has (Anguilla & St. Martin) 2 supplementary setae as compared with GORDON's drawing. This is true also for the other pleopods, and I have seen more setae on the exopodites too. May be BOWMAN's remark, that in *S. major* the pleopods have "setae more numerous than in *holthuisi*" was inspired especially by comparison with GORDON's figures. The Vth pleopod of a St. Martin specimen has been figured herewith (Fig. 36).

There is one clear difference between *Stygiomysis holthuisi* from Anguilla, and from St. Martin, viz., the armature of spines on the median margin of the backward process of the uropodal protopodite: see Fig. 37. A

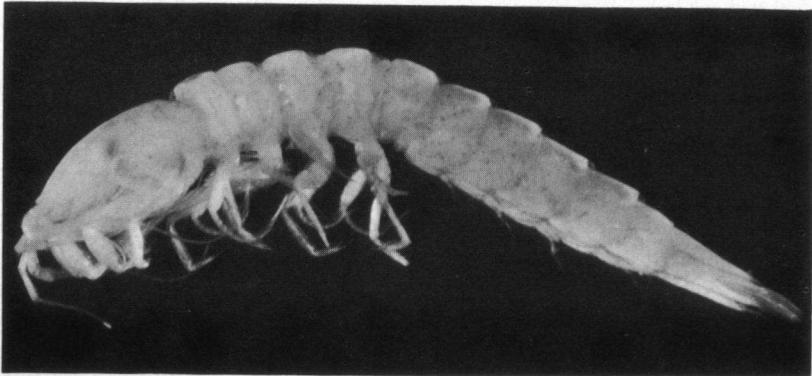


Fig. 32. *Stygiomysis holthuisi* (Gordon) from its type locality, Devils Hole, ST. MARTIN (Lesser Antilles): ♀, length 9.3 mm; lateral view.

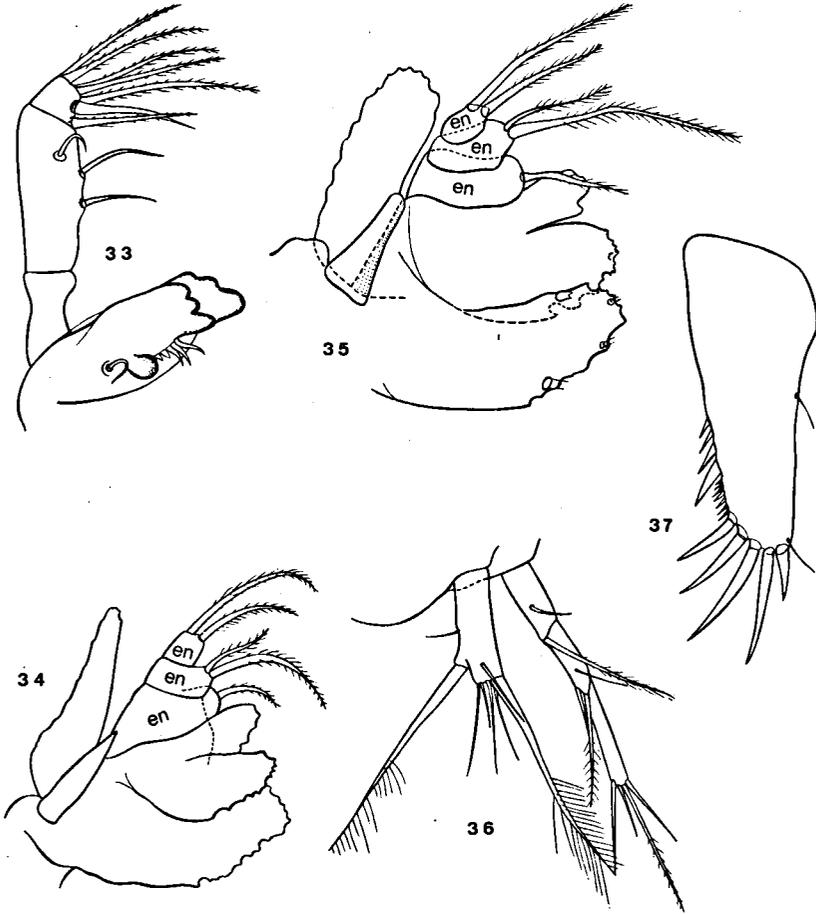


Fig. 33–37. *Stygiomysis holthuisi* (Gordon). – 33. ST. MARTIN, left mandible. – 34 and 35. ANGUILLA and ST. MARTIN resp., maxilla II (only the setae of the endopodite are represented). – 36. ST. MARTIN, pleopod V. – 37. ANGUILLA, backward process of uropod protopodite.

comparison with the excellent fig. 13 in GORDON (1960) and fig. 34 of BOWMAN (1976), will show that, in this respect, the Anguilla and Puerto Rico specimens are identical, and that BOWMAN was right in refraining from using this character for specific or subspecific distinction of the Puerto Rican populations from *S. holthuisi*.

## SUMMARY

The remarkable stygobiont mysid *Stygiomysis holthuisi* (Gordon, 1958) has been originally described from St. Martin (Lesser Antilles), and has been found afterwards also in Puerto Rico. The present paper records it from an anchialine habitat and from a cave on Anguilla, near St. Martin. Comparison of the Anguilla specimens with the available descriptions and with freshly collected specimens from the type-locality gave interesting results concerning the variability of the species. There is generally good agreement between specimens from the three islands, except for the armature of spines of the uropodal pleopodite: in this respect, specimens from Anguilla and Puerto Rico both differ from those caught on St. Martin. Surprisingly enough, the endopodite of the maxilla II was found to be triarticulate, a situation apparently never observed in the Mysidacea.

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