

Amsterdam Expeditions to the West Indian Islands, Report 37*

THE GENUS *TANycyPRIS* (CRUSTACEA, OSTRACODA)
IN THE WEST INDIES

by

NICO W. BROODBAKKER

*Institute of Taxonomic Zoology, University of Amsterdam,
P.O. Box 20125, 1000 HC Amsterdam, The Netherlands*

SUMMARY

A list of species that are, or probably have to be, assigned to the genus *Tanycypris* is given. A redescription is given of *T. meridana* (Furtos, 1936), a species originally described as *Herpetocypris*, from Yucatan (Mexico). This species was also found in Puerto Rico, two of the Lesser Antilles and two islands off the Venezuelan coast. The species is compared with other species of *Tanycypris*, with species of the subgenus *Acanthocypris* of *Strandesia* s.l., as defined by Broodbakker (1983), and especially with *Strandesia venezolana* Broodbakker, 1983, which seems to be intermediate between *Tanycypris* and *Acanthocypris*. Furthermore, a supplementary diagnosis of the genus *Tanycypris* is given. *Tanycypris* appears to be a widespread tropical genus, represented by few species with an extensive distribution.

RÉSUMÉ

On présente une liste des espèces appartenant (ou appartenant probablement) au genre *Tanycypris*. On donne une redescription de *T. meridana* (Furtos, 1936), espèce décrite du Yucatan, d'abord comme *Herpetocypris*. Cette espèce a été retrouvée à Puerto Rico, dans deux des Petites Antilles, ainsi que dans deux îles au large des côtes du Venezuela. On compare cette espèce avec d'autres *Tanycypris*, avec des espèces appartenant au sous-genre *Acanthocypris* (de *Strandesia* s.l., tel que défini par Broodbakker, 1983), et surtout avec *Strandesia venezolana* Broodbakker, 1983 — espèce qui semble occuper une position intermédiaire entre *Tanycypris* et *Acanthocypris*. De plus, une diagnose supplémentaire du genre *Tanycypris* est fournie. *Tanycypris* se montre être un genre tropical à large distribution, représenté par un petit nombre d'espèces, elles-aussi à large distribution.

1. INTRODUCTION

This article is part of a study on the tribe Cypricerini. The other parts (Broodbakker, 1983, 1984) dealt with the genus *Strandesia*. In the present article the genus *Tanycypris*, which is classified here with the tribe Cypricerini, as was suggested by Victor & Fernando (1981) and discussed by Broodbakker (1983), is reviewed. All species that are or ought to be ascribed to this genus are listed and discussed. The genus is represented in the West Indies by the species *T. meridana*, which was incorrectly described as a *Herpetocypris* by Furtos (1936). This species is redescribed and compared with species of the genus *Strandesia*, and in particular with *S. venezolana* Broodbakker, 1983, which seems to occupy an intermediate position between *Strandesia* and *Tanycypris* (Broodbakker, 1983: 355).

2. MATERIAL AND METHODS

The species was only found in the epigeal samples collected by the expeditions of Dr. P. Wagenaar Hummelinck (abbreviated as WH) to many Caribbean islands (1936-1973), and was not present in the wells and other groundwater habitats sampled by the Amsterdam Expeditions to the West Indian Islands. All material is deposited in the Zoölogisch Museum, Amsterdam (ZMA).

The descriptions of the chaetotaxy of the limbs are made according to the system of Broodbakker & Danielopol (1982). The lengths of several segments and setae were measured, as well as carapace length. Measuring was done with a ruler on a sheet of white paper, on which the animals were projected by way of a camera lucida and a Leitz Dialux 20 EB microscope. Slides were made according to the method of Danielopol (1982).

* Report 36 is published in the same issue of this journal.

3. TAXONOMIC PART

Family CYPRIDIDAE Baird, 1845
 Subfamily CYPRIDINAE Baird, 1845
 Tribe Cypricerini McKenzie, 1971

Genus *Tanycypris* Triebel, 1959
 Type-species: *Tanycypris madagascarensis*
 (Müller, 1898)

G. W. Müller (1898) described two species of ostracods, *Cypris clavigera* and *C. madagascarensis*, from Madagascar. In 1912 he placed these species in the genus *Dolerocypris*. Triebel (1959) showed that *D. madagascarensis* does not belong to *Dolerocypris*, and erected the new genus *Tanycypris* for the species.

Rome (1965) described a *Tanycypris* species from South Africa, which he considered to be the same as *D. clavigera*. However, the species described by Rome is much larger, does not possess spines at the posterior part of the valves, and is parthenogenetic. Furthermore, Rome (1965: 21) states that there is no spine visible in fig. 15 of Müller (1898: pl. XVI), which is simply not true. Considering the fact that the structure of the furca is very similar in the different species, as is the shape of the carapace, I strongly doubt that Rome was dealing with *T. clavigera*. Reexamination of the type-specimens will have to reveal their true affinity.

Petkovski, in the discussion following the congress paper of Rome (1969), declared that *Dolerocypris pellucida* Klie, 1932, also belongs in *Tanycypris* and that specimens which he identified as *T. pellucida*, coming from rice fields in Macedonia, were in his view identical with *T. clavigera*. Furthermore, in his opinion *Dolerocypris marina* Hartmann, 1965, described from a submarine freshwater spring in Chile, belongs in *Tanycypris* as well.

Victor & Fernando (1981) provided a concise description of the genus *Tanycypris*, and discussed *T. pellucida*. They synonymized *Strandesia camaguensis* Tressler, 1937, from the Philippines, also recorded from Japan by Okubo (1972), with *T. pellucida* from Sumatra. Moreover, they assume that *T. pellucida* and *T.*

clavigera are different in the structure of the valves and the furcal attachment. In *T. pellucida* the ventral branch of the furcal attachment is reduced to a stump, while it is absent in *T. clavigera*.

In some samples from the West Indies a species was found with the carapace shape of a *Stenocypris* or *Herpetocypris*, but showing a dorsal eyelet in the furcal attachment, and a strongly serrate, symmetrical furca. On the ground of these characters and the reduced ventral branch of the furcal attachment, it would belong to the genus *Tanycypris*. Furthermore, the anterior seta of the furca is nearly as long as the anterior claw, the posterior seta is serrate, and the posterior claw is bent in anterior direction at 20% of its length. These furcal characters are also found in other *Tanycypris* species.

The species was compared with similar Ostracoda, described from South and Central America, and appeared to be the same as *Herpetocypris meridana* Furtos, 1936, described from Yucatan. This species has the same carapace shape, size, and furca. Unfortunately, Furtos did not describe many other characters.

There are two other species which may be identical with, but are at least closely related to, *T. meridana*. These species are: *Strandesia pedroensis* Tressler, 1949, from Brazil, and *Herpetocypris bonettoi* Ferguson, 1967, from Argentina. Both species were, however, very poorly described, which makes a reliable identification impossible. The species discussed are listed in table I, with some other data.

T. meridana is here redescribed, and its characters are compared with those of other *Tanycypris* species, and with those of *Strandesia venezolana* and *S. longula* Broodbakker, 1983.

Tanycypris meridana (Furtos, 1936) (Figs. 1, 2)

Material. — WH 759, Îles des Saintes, Terre-de-Haut, Mare Basse, temporary dug-out pool; dimensions: 18 × 18 × 0.5 m; andesite, detritus; meadow-like, muddy, considerable growth of algae and water lilies; slightly

TABLE I

List of species belonging or ascribed to the genus *Tanycypris*, distribution, carapace length, and authors who discussed or redescribed the species.

| Species | Geographical distribution (authors) | ♂♂ found | Length range ♀♀ specimens (mm) |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------|--------------------------------------|
| <i>Tanycypris bonettoi</i> (Ferguson, 1967) | Argentina (= probably syn. with <i>T. meridana</i>) | — | 1.25-1.30 |
| <i>Tanycypris camaguensis</i> (Tressler, 1937) | Philippines (= syn. with <i>T. pellucida</i> ; Victor & Fernando, 1981) | — | 1.36 |
| <i>Tanycypris clavigera</i> (Müller, 1898) | Madagascar | + | 0.75-0.80 |
| <i>Tanycypris nec clavigera</i> Rome, 1965 | South Africa | — | 1.18 |
| <i>Tanycypris madagascarensis</i> (Müller, 1898) | Madagascar (Triebel, 1959) | + | 1.52-1.66 |
| <i>Tanycypris marina</i> (Hartmann, 1965) | Chile (Petkovski, in Rome, 1969) | + | 1.02-1.03 |
| <i>Tanycypris meridana</i> (Furtos, 1936) | Mexico, Puerto Rico, La Désirade, Îles des Saintes, Los Testigos, Isla Margarita | — | 1.28-1.37 |
| <i>Tanycypris pedroensis</i> (Tressler, 1949) | Brazil (= probably syn. with <i>T. meridana</i>) | — | 1.33 |
| <i>Tanycypris pellucida</i> (Klie, 1932) | Sumatra, Philippines, Russia, Japan, Malaysia (Bronstein, 1947; Okubo, 1972; Victor & Fernando, 1981) | — | 1.20-1.46 |

polluted by cattle; chlorinity 70 mg/l; 6-II-1964; about 300 specimens used for redescription. Accompanying Ostracoda: *Cyprretta* sp., *Cypridopsis* sp.

Other stations: WH 13, Isla Margarita, Estanque Lato, W. of Boca del Rio, Macanao; dug and dammed, permanent, stagnant pool; dimensions: 80 × 50 × 3(?) m; detritus and schist debris; sand and mud; few algae with some *Chara* and *Najas*; clear and colourless; chlorinity 70 mg/l; 20-V-1936; 21 specimens (length range of carapaces: 1.20 to 1.28 mm). Accompanying Ostracoda: *Potamocypris hummelincki* Klie, 1933, *Chlamydotheca hummelincki hummelincki* Triebel, 1961, and *Physocypris affinis* Klie, 1933.

WH 30, Los Testigos, Poza del Morro de la Iguana; dug and dammed, stagnant, semipermanent pool; dimensions: 10 × 6 × 1.5 m; on weathered granitic rock; sand and mud; very few algae, much *Lemna*; turbid and greyish; chlorinity 460 mg/l; 14-VI-1936; 6 specimens (length range of carapaces: 1.22 to 1.25 mm). Accompanying Ostracoda: *Rudjakoviella prolongata* (Triebel, 1962), *Chlamydotheca hummelincki hummelincki*, *Physocypris affinis*, *Heterocypris margaritae* Margalef, 1961, and *Potamocypris hummelincki*.

WH 743, La Désirade, pool near the Source du Léproserie; dug-out, muddy pool on loamy semicultivated soil; dimensions: 2 × 1 × 0.25 m; no vegetation; chlorinity about 500 mg/l; 24-I-1964; 1 specimen (carapace length: 1.31 mm). No accompanying ostracods.

WH 706, Puerto Rico, Laguna Cartagena, Valle de Lajas; part of large lake; dimensions: 100 × 50? × 1 m; semi-permanent; inundated; on semicultivated weathered soil; muddy bottom; phanerogams; chlorinity 30 mg/l; 18-IX-1963; 4 specimens (length range of carapaces: 1.30 to 1.32 mm).

Geographical distribution known. — Yucatan (Mexico), Puerto Rico, La Désirade, Îles des Saintes, Los Testigos, Isla Margarita.

Redescription

Only females of this species have been found. Relative lengths of some setae and segments are given in table II.

Carapace (figs. 1, 2A):

The carapace is smooth, sparsely hairy, and whitish transparent in dead specimens. The available specimens were strongly decalcified because of preservation in formalin. The outer surface is very finely striate, as can be seen in fig. 1E. Hinge adont. Muscle scars as typical of the Cypridinae. In dorsal view greatest width from one-third to two-thirds of the length, being about 30% of the length (fig. 1D). In lateral view greatest height at about 60% of the length, being 40% of the length. Left valve slightly larger than the right one.

Carapace very elongate. The dorsal margin is slightly bent and passes smoothly in the broadly rounded anterior margin, and the less rounded posterior one. The decline of the dorsal margin is stronger posteriorly. The dorso-

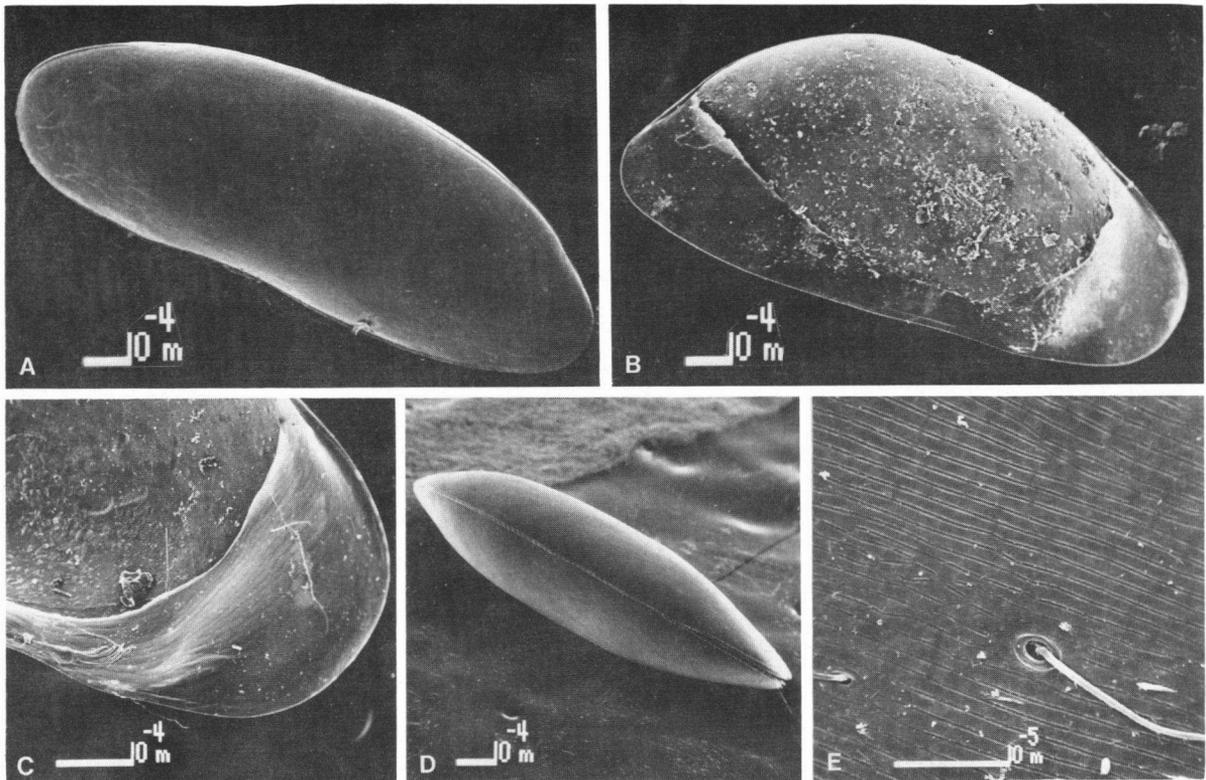


Fig. 1. *Tanycypris meridana* (Furtos, 1936) (WH 759, Terre-de-Haut, Mare Basse, Îles des Saintes; ♀ specimens): A, complete animal in lateral view; B, left valve from inside; C, detail of inner side of anterior part of the left valve; D, carapace in dorsal view; E, detail of surface structure of the valves.

posterior part forms an angle of 45° with the ventral margin, but is anteroposteriorly rounded. Ventral margin only slightly sinuate. There is no distinct lip-like projection anteroventrally, in contrast to that in *Strandesia* species. In neither of the valves marginal pore canals are visible.

Duplicature very wide anteriorly, the inner margin strongly declining in ventral direction. Ventrally the inner margin smoothly inclines in posterior direction, forming an elongate large duplicature posteriorly. The duplicature is largely grooved (figs. 1B-C, 2A). Selvage and flange are not pronounced. The carapace is more hairy at the ventral edges.

The mean length of the carapace is 1.27 ± 0.02 mm ($n = 81$) in WH 759, Îles des Saintes (length range: 1.18 to 1.34 mm), and 1.24 ± 0.02 mm ($n = 19$) in WH 13, Margarita (length range: 1.20 to 1.28 mm). The length of

the few specimens which have been found in the other localities ranges from 1.22 to 1.31 mm, falling within the length range of the specimens from Îles des Saintes.

The specimens found by Furtos (1936) measured 1.37 mm in length. The specimens described as *Strandesia pedroensis* by Tressler (1949) measured 1.33 mm in length, and the specimens described as *Herpetocypris bonettoi* by Ferguson (1967) measured 1.25 to 1.30 mm in length.

Antennule (fig. 2B):

I: A-1*m*(pu), P-2*l*(pu)/II: A-1*s*, P-r/III: A-1*s*, P-1*s*/IV: A-2*l*, P-1*s*/V: A-2*l*, P-1*l*-1*s*/VI: A-2*l*, P-2*l*/VII: D-1*l*(y_a)-1*s*-2*l*.

Rome's organ is very small, translucent, and shaped as a hollow tube (fig. 2B). The structure and chaetotaxy is the same as in *Strandesia* species. The aesthetasc y_a is very long, and the

short setae of segments II to VI are very short. The segments III to VII are long and slender.

Second antenna (figs. 2C-D):

The structure and chaetotaxy are the same as in *S. longula*, with long slender claws, which are not extremely serrate. Claw G_2 does not have stronger teeth, in contrast to this claw in *S. venezolana*. The claws are hooked at the tops. The long swimming setae are barely reaching the tips of the claws. The three exopodal setae are short. The segments of the antenna are long and slender. The aesthetascs Y and y_3 are 30% and 23% of the length of E I, respectively. The z-setae are just not reaching the tips of the claws. The other setae are practically the same as in *S. longula*. The longest exopodal seta is much shorter than in *S. longula* and *S. venezolana*. G_1 is longer as compared with E (II+III), a feature common in the subgenus *Neocypris*, but not in *Acanthocypris*, to which *S. longula* and *S. venezolana* belong.

Mandibular palp (Mdp) (fig. 2E):

I: In-1m-2m($S_{1,2}$: pu)- α /II: In-3m(pu)- β (pu)-1s(pu), Ex-2l-1s/III: In-2s, Ex-3m-1s, A-3s- γ (pu)/IV: D-2m(cs:ser)-1s(cs)-3s.

The structure and chaetotaxy are practically the same as in most *Strandesia* species, but for a few exceptions. Segment III is comparatively longer than in *Strandesia*. Seta γ is long and slender, 63% of the length of segment III, and plumose at one side. In most *Strandesia* species it is wider and pappose, but in *S. venezolana* it is likewise long and slender, but more strongly plumose on two sides. The nameless seta of segment I is long, as in *S. venezolana*, and not short as in *S. longula*. Setae α and β are as in many other *Strandesia* species, seta α being thin and delicate, and β being broad and plumose. Setae α and β are 63 and 43% of the length of segment III, respectively.

Maxillula (Mxu) (fig. 2F):

The chaetotaxy and structure are the same as in *Strandesia*. The second segment of the maxillular palp (Mxup II) is as elongate as in *S. venezolana*, but longer than in the other West Indian

Strandesia species. The first segment of the maxillular palp (Mxup I) and the third masticatory process are even more elongated than in *Strandesia*. The chelate setae (cs) of Mxup II are 1.7, and those of Mastic 3 are 1.6 times the length of Mxup II, which is the same as in *S. venezolana*, longer than in *S. longula*, but shorter than in most other West Indian *Strandesia* species. The two chelate setae of Mastic 3 are serrate at two sides.

Maxilla (Max) (fig. 2K):

Pr: A-2s(a:pu)/Exo: P-6m(pu)/Mastic: D-12? s (pu)/E: D-2s(pu)-1m(pu).

Two plumose 'a' setae are present. The setae 'b' and 'd' could not be found. The exopodite consists of six plumose setae. The protopodite as well as the endopodite are long and more slender than in *Strandesia*. The distal part of the protopodite is strongly twisted and stick-like on its most narrow side.

Thoracopod 1 (T 1) (fig. 2G):

The structure and chaetotaxy are the same as in *Strandesia*. The segments are somewhat more elongate than in *Strandesia*, especially the first endopodal segment. The relative lengths of the segments are comparable with those in the West Indian *Strandesia* species. The claw is relatively short, being 2.5 times the length of E II, which is as long as in *S. venezolana*, but relatively shorter than in the other West Indian *Strandesia* species.

Thoracopod 2 (T 2) (fig. 2H):

The structure and chaetotaxy are the same as in *Strandesia*. The seta of E I and the medial seta of E (II+III) are 72 and 40% of the length of E I, respectively, the same relative lengths as in *S. longula* and *S. venezolana*.

Furca (Fu) (fig. 2L):

The furca is strongly serrate with seven groups of spines at the posterior side, and two rows of very minute spines along the lateroexterior sides. One row runs parallel to the strong spines and very close to it, the other one parallel and along the middle of the ramus. The ramus is 16

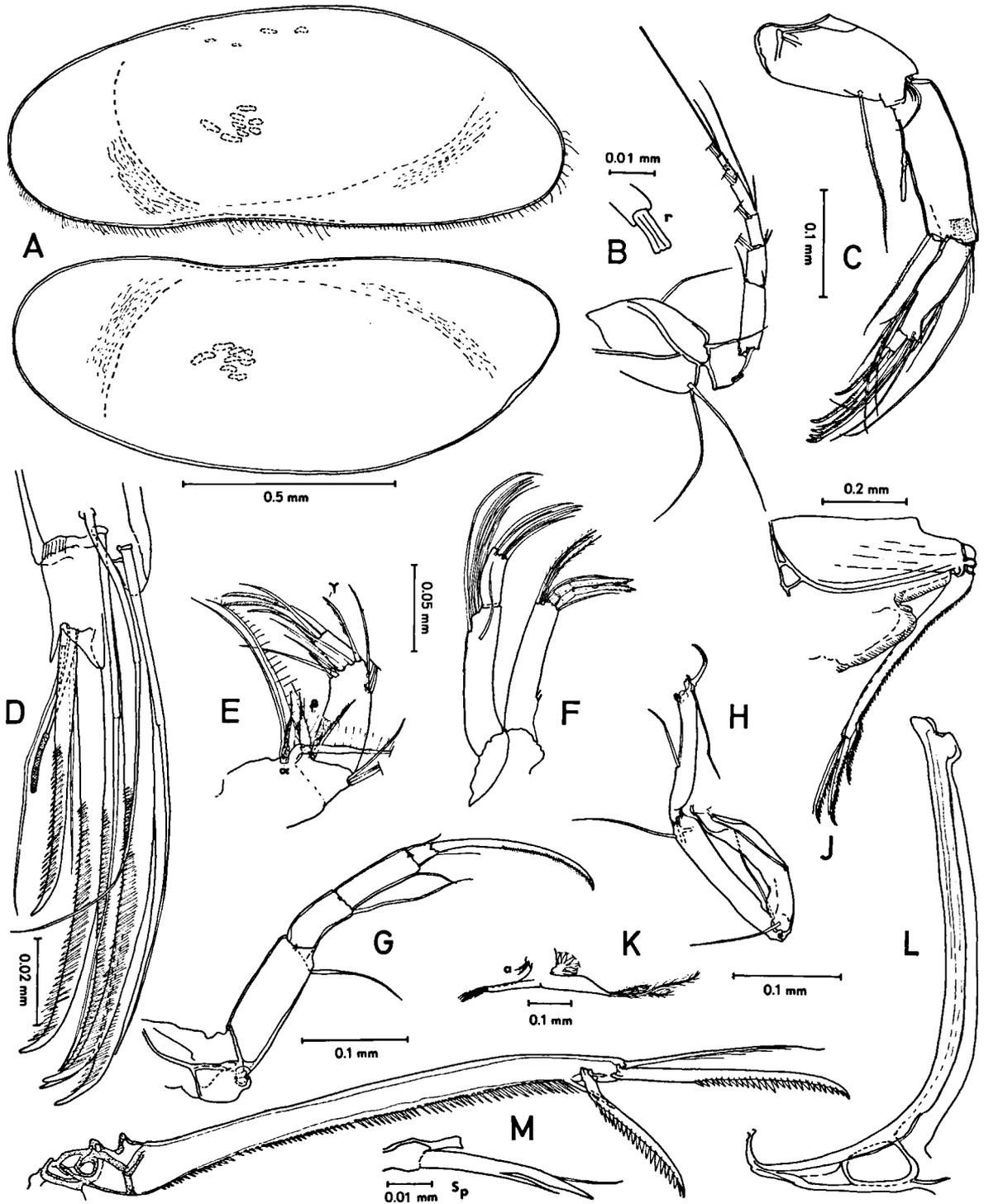


Fig. 2. *Tanycypris meridana* (Furtos, 1936) (WH 759, Terre-de-Haut, Mare Basse, Îles des Saintes: A-E, G-M, ♀ no. 1; F, ♀ no. 2): A, left and right valve in lateral view; B, antennule with detail of Rome's organ (r); C, D, second antenna and detail of distal claws; E, mandibular palp; F, maxillular palp; G, H, first and second thoracopod; J, posterior part of the body; K, maxilla; L, furcal attachment; M, furca, with detail of posterior seta (s_p).

TABLE II

Relative lengths of some setae and segments of appendages of *Tanycypris meridana*, and of two West Indian species of *Strandesia*, *S. venezolana* and *S. longula*, for comparison. Abbreviations used: eye = eyelet, le = length; ms = medial shaft; swim = swimming bristle; vb = ventral branch; w = width. For further abbreviations, see Broodbakker & Danielopol, 1982: 114.

| | A 1: y _a /III | III | IV | V | VI | VII | A 2: E I : E(II + III) : G ₁ | $\frac{l_{swim}}{E I}$ | $\frac{l_{exo}}{E I}$ | |
|------------------------------|-----------------------------|-----|-----|-----|-----|-----|--------------------------------------------|------------------------|-----------------------|-----|
| <i>Tanycypris meridana</i> | 2.2 | 2.2 | 1.2 | 1.0 | 1.2 | 1 | 1.6 1 | 1.2 | 1.5 | 0.4 |
| <i>Strandesia venezolana</i> | 1.3 | 3.4 | 1.3 | 1.2 | 1.3 | 1 | 1.4 1.1 | 1 | 1.8 | 1.0 |
| <i>Strandesia longula</i> | 1.2 | 2.8 | 1.1 | 1.1 | 1.2 | 1 | 1.5 1.1 | 1 | 1.7 | 1.0 |

| | Mdp: IV/III | Mxup I: le/width | Mxup II: le/width | Mastic 3: le/width | T 1: E I : E II : E III : E IV : G |
|------------------------------|----------------|---------------------|----------------------|-----------------------|---------------------------------------|
| <i>Tanycypris meridana</i> | 41% | 6.0 | 3.0 | 5.3 | 2.1 1 1.2 0.3 2.5 |
| <i>Strandesia venezolana</i> | 57% | 5.2 | 2.9 | 3.4 | 2.0 1 1.0 0.3 2.5 |
| <i>Strandesia longula</i> | 53% | 4.9 | 2.4 | 3.2 | 1.9 1 1.1 0.3 3.0 |

| | Fuat: ms/w | eye/ms | vb/ms | Fu: R/w | G _a /R | G _p /G _a | s _a /G _a | s _p /G _p |
|------------------------------|---------------|--------|-------|------------|-------------------|--------------------------------|--------------------------------|--------------------------------|
| <i>Tanycypris meridana</i> | 14 | 14% | 7% | 18 | 46% | 69% | 84% | 30% |
| <i>Strandesia venezolana</i> | 19 | 21% | 22% | 21 | 44% | 50% | 75% | 44% |
| <i>Strandesia longula</i> | 19 | 26% | 24% | 18 | 39% | 53% | 66% | 29% |

to 18 times as long as wide, depending on what is used as the basis of measuring. There is a complicated structure of sclerifications at the attachment point of the furcal attachment. The anterior claw (G_a) is strongly pectinate for two-thirds of its length, and the posterior claw (G_p) for 80% of its length. The posterior seta is short, strong, with one spine and one setule, and fused with the ramus. The anterior seta (s_a) is long and plumose.

The anterior claw is practically straight and only slightly bent at the top. The posterior claw is bent in anterior direction at 20% of its length. The ramus is only slightly bent.

The furca is practically the same as in the other *Tanycypris* species, and shows most affinities with the furca in species of the subgenus *Acanthocypris* of *Strandesia*, especially with that of *S. (A.) venezolana*.

Furcal attachment (Fuat) (fig. 2L):

The furcal attachment is strong, wide, and has

two eyelets, an oval large, and a triangular small one. The ventral branch is reduced to a small spine. It is typical of the genus *Tanycypris*.

Female copulatory organs (fig. 2J):

These have no special characters. They are somewhat shifted in anterior direction, as in *S. longula* and *S. venezolana*.

Ecology:

T. pellucida was found in ponds, ditches and rice fields (Victor & Fernando, 1981). *T. meridana* was always found in pools, and once in inundated semicultivated land, with a muddy, or sandy and mudded bottom, at a chlorinity up to 500 mg/l. Furtos (1936) and Tressler (1949) do not mention the type of habitat in which the species was found. Ferguson (1967) collected his species in very shallow waters, with much submergent vegetation. Therefore the species is assumed to be truly epigeal, with perhaps a preference for shallow, large waters with much

vegetation, since it was seldom found in pools, and never in wells.

4. TAXONOMY OF TANYCYPRIS AND ACANTHOCYPRIS

The genus *Tanycypris* shows most affinities with the subgenus *Acanthocypris* of *Strandesia* s.l., as defined in Broodbakker (1983). Most characters of this subgenus are also found in *Tanycypris*, especially the elongate carapace, the strongly serrate furca with short posterior seta, and the relatively short swimming setae of the second antenna. For each limb the characteristics of species of the genus *Tanycypris* will be given, and the differences with the subgenus *Acanthocypris*.

Antennule: The segments are slender, segment III is 2.5 to 3 times as long as wide.

Second antenna: The distal claws are long and slender, 1.2 to 1.3 times the length of E (II + III), this in contrast to the claws in *Acanthocypris*, and conform the claws in the subgenus *Neocypris*. In some species G_2 is more strongly serrate than the other claws, as in *S. venezolana*. The swimming bristles just reach or just do not reach the tips of the distal claws.

Mandibular palp: Seta γ is slender, elongate and plumose at one side. It has about twice the length of segment IV. In *S. venezolana* seta γ has the same shape, but is pappose. In *Bradleystrandesia fuscata* (Jurine, 1820) it is also slender, but in most *Strandesia* species it is shorter and broad.

Maxillula: The segments of the maxillular palp as well as the third masticatory process are more elongate than in *Acanthocypris*. However, *S. venezolana* also has a long Mxup II. In *Tanycypris* Mxup II is 2.7 to 3 times as long as wide. The chelate setae of the third masticatory process are usually serrate, excepting *T. marina*, and maybe *T. clavigera* sensu Müller.

Maxilla: There are two 'a' setae present, but 'b' and 'd' setae could not be found. Rome (1965) mentions that there are sparse setae, but does not refer to specific setae, except for the three endopodal ones. Both male and female

maxillae are much more slender than in *Acanthocypris*, *S. venezolana* included. Especially the male endopodites are more or less elongate, rectangular (Müller, 1898; Hartmann, 1965). The exopodite consists of six setae, as in *Strandesia*.

Thoracopod 1: The segments are elongate and slender, the distal claw being comparatively short, as in *S. venezolana*, but in contrast to the other *Acanthocypris* species.

Thoracopod 2: No special characteristics. The length of the endopodites is about one-quarter of the length of the carapace, as in *Acanthocypris*.

Furcal attachment: This part is large and stout, terminating in a large rounded eyelet, followed by a second smaller triangular eyelet. The ventral branch is absent or reduced. In *S. venezolana* there are two eyelets, but also a long ventral branch.

Furca: The characters of the furca are described in detail in the description of *T. meridana*. The serration of claws and ramus is as in *Acanthocypris* or even stronger, the anterior claw is 40 to 45% of the length of the ramus, the anterior seta is slightly shorter, and usually plumose. The posterior claw is 60 to 70% of the length of the anterior claw, and bent in anterior direction at the proximal part. The posterior seta is split or serrate.

Carapace: The carapace is extensively characterized by Triebel (1959). However, some changes in the diagnosis are necessary. The duplicature is not only wide anteriorly, but also posteriorly, as can be seen when figure 19b (Triebel, 1959: Tafel 17) is examined. It was very difficult, if not impossible, to distinguish the posterior part of the duplicature under the microscope, but in the SEM photographs it is clearly visible (fig. 1B). In the description of *S. venezolana* this part of the duplicature has been overlooked as well, but upon reexamination it turned out to be the same as in *T. meridana*.

The carapace is elongate, the height being less than half the length. The anterior part is rounded, the posterior part can be rounded, or more or less acuminate, sometimes with small spines.

From the description of the characters of the genus *Tanycypris*, and the differences with *Acanthocypris* and *S. venezolana*, it is clear that *Tanycypris* is closely related to the genus *Strandesia* s.l. and to the subgenus *Acanthocypris* in particular. *S. venezolana* shows many intermediate characters between *Acanthocypris* and *Tanycypris*, and is therefore postulated to be an intermediate species, as was already mentioned in Broodbakker (1983).

5. DISTRIBUTION AND ZOOGEOGRAPHY OF *TANICYPRIS*

T. meridana is found in localities at considerable distances. It is probable, as in many other described freshwater ostracods from the West Indies, that it is more widely distributed than is presently known, since it was found in Yucatan (Mexico), Puerto Rico, some of the Lesser Antilles, and on two islands off the Venezuelan coast. If *T. pedroensis* and *T. bonettoi* are proven to be the same species, it will mean that it is also present in Brazil and Argentina, so it probably has an extensive distribution throughout South America. If not, then at least all these South American species are very closely related.

This wide distribution is not uncommon, since *T. pellucida* was shown to be widely spread in Asia, by Victor & Fernando (1981). From Africa not enough data on *Tanycypris* are available yet, but the species described by Rome (1965) as *T. clavigera* very closely resembles *T. pellucida* (see Petkovski, in Rome, 1969).

The genus *Tanycypris* seems to be a widespread tropical genus, represented by only a few species with an extensive distribution.

ACKNOWLEDGEMENTS

Dr. D. L. Danielopol is thanked for his support and the many contributions to my research project. Prof. Dr. J. H. Stock (coordinator of the West Indian project), Dr. L. Botosaneanu, and Drs. F. F. J. M. Pieters are thanked for critically reviewing the manuscript.

Dr. P. Wagenaar Hummelinck kindly placed his sampled material at our disposal.

The late Maarten Schoonoord made the SEM photographs, which were developed and printed by Louis van der Laan.

This study has been financed by the Netherlands Foundation for the Advancement of Tropical Research (WOTRO; The Hague).

REFERENCES

- BRONSTEIN, Z. S., 1947. Faune de l'URSS. Crustacés II (1). Ostracodes des eaux douces. Fauna SSSR, (N.S.) 31: 1-334, pls. I-XIV (in Russian).
- BROODBAKKER, N. W., 1983. The genus *Strandesia* and other Cypricerini (Crustacea, Ostracoda) in the West Indies. Part I. Taxonomy. *Bijdr. Dierk.*, 53 (2): 327-368.
- , 1984. The genus *Strandesia* and other Cypricerini (Crustacea, Ostracoda) in the West Indies. Part II. Carapace length, ecology, and distribution of two *Strandesia* species. *Bijdr. Dierk.*, 54 (1): 1-14.
- BROODBAKKER, N. W. & D. L. DANIELOPOL, 1982. The chaetotaxy of Cypridacea (Crustacea, Ostracoda) limbs: proposals for a descriptive model. *Bijdr. Dierk.*, 52 (2): 103-120.
- DANIELOPOL, D. L., 1982. The preparation of ostracod limbs, for optical microscopy (dissection, staining and mounting procedures). In: R. F. MADDOCKS ed., Eighth International Symposium on Ostracoda, July 26-29, 1982. Programs and abstracts: 41-43 (Department of Geosciences, University of Houston).
- FERGUSON, E., 1967. Three new species of freshwater ostracods (Crustacea) from Argentina. *Notul. Nat.*, 405: 1-7.
- FURTOS, N. C., 1936. On the Ostracoda from the cenotes of Yucatan and vicinity. *Publ. Carnegie Instn.*, 457: 89-115.
- HARTMANN, G., 1965. Zur Kenntnis des Sublitorals der chilenischen Küste unter besonderer Berücksichtigung der Polychaeten und Ostracoden. III. Ostracoden des Sublitorals. *Mitt. hamb. zool. Mus. Inst.*, 62 (Suppl.): 307-384.
- MÜLLER, G. W., 1898. Wissenschaftliche Ergebnisse der Reisen in Madagaskar und Ostafrika in den Jahren 1889-95 von Dr. A. Voeltzkow. Heft II. Die Ostracoden. *Abh. senckenb. naturforsch. Ges.*, 21: 257-296, pls. XIII-XIX.
- , 1912. Ostracoda. *Tierreich*, 31: i-xxxiii, 1-434.
- OKUBO, I., 1972. *Strandesia camaguensis* Tressler, 1937 from Japan (Ostracoda, Cyprididae). *Proc. Jap. Soc. Syst. Zool.*, 9: 1-6.
- ROME, D. R., 1965. Crustacea: Ostracoda. In: B. HANSTRÖM, P. BRINK & G. RUDEBECK eds., *South African Animal Life*, 11: 9-58 (Swedish Natural Science Research Council, Stockholm).
- , 1969. Morphologie de l'attache de la furca chez les Cyprididae et son utilisation en systématique. In:

- J. W. NEALE ed., The taxonomy, morphology and ecology of recent Ostracoda: 168-193 (Oliver & Boyd Ltd., Edinburgh).
- TRESSLER, W. L., 1937. Ostracoda. *Int. Revue ges. Hydrobiol. Hydrogr.*, **34**: 188-207.
- , 1949. Freshwater Ostracoda from Brazil. *Proc. U.S. natn. Mus.*, **100**: 61-83.
- TRIEBEL, E., 1959. Zur Kenntnis der Ostracoden-Gattungen *Isocypris* und *Dolerocypris*. *Senckenberg. biol.*, **40**: 155-170, pls. 12-18.
- VICTOR, R. & C. H. FERNANDO, 1981. Freshwater ostracods (Crustacea: Ostracoda) of the subfamily Dolerocypridinae Triebel, 1961 from Southeast Asia. *Zool. J. Linn. Soc.*, **72** (2): 107-116.

Received: 15 December 1983