

BEAUFORTIA

INSTITUTE OF TAXONOMIC ZOOLOGY (ZOOLOGICAL MUSEUM)
UNIVERSITY OF AMSTERDAM

Vol. 41, no. 21

October 22, 1990

ON FRESHWATER OSTRACODA (CRUSTACEA) COLLECTED ON THE CANARY ISLANDS

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RESUME

Les auteurs ont examiné une collection de 38 échantillons d'Ostracodes d'eau douce récoltés par le Prof. J. H. Stock sur les Iles Canaries de 1985 à 1987. Seules quelques espèces ont été trouvées. *Cypridopsis lanzarotensis* fut décrite par Mallwitz (1984) de l'île de Lanzarote (îles Canaries); c'est la première fois qu'elle est signalée depuis sa découverte. Dans le présent travail, l'espèce est transférée dans le genre *Sarscypridopsis* McKenzie 1977. Les espèces suivantes sont signalées pour la première fois des Iles Canaries: *Plesiocypridopsis newtoni* (Brady & Robertson, 1870); *Cyprretta seurati* Gauthier, 1929 ainsi que les deux espèces cosmopolites *Cypridopsis vidua* (O. F. Müller, 1776) et *Heterocypris incongruens* (Ramdohr, 1808). La taxonomie, l'écologie et la distribution géographique des trois premières espèces sont brièvement discutées.

ABSTRACT

The authors examined a collection of 38 samples of freshwater Ostracoda collected by Prof. Dr. J. H. Stock between 1985 and 1987 on the Canary Islands. In these samples only a few species of Ostracoda were present. *Cypridopsis lanzarotensis* has been described by Mallwitz (1984) from the isle of Lanzarote and has not been collected since then. In this paper this species is re-assigned to the genus *Sarscypridopsis* McKenzie, 1977. This is the first time that the following species have been recorded from the Canary Islands: *Plesiocypridopsis newtoni* (Brady & Robertson, 1870); *Cyprretta seurati* Gauthier, 1929; and the cosmopolitan species *Cypridopsis vidua* (O. F. Müller, 1776) and *Heterocypris incongruens* (Ramdohr, 1808). The taxonomy, ecology and distribution of the first three species are briefly discussed in this paper.

INTRODUCTION

Prof. Dr. J. H. Stock has collected many groundwater samples in the Canary Islands since 1985. In a lot of these samples Ostracoda

were present. In a brief examination of 38 samples it was found that none of the species present belonged to the stygobiont fauna. All species with the possible exception of *Sarscypridopsis lanzarotensis* are also known from

surface water habitats outside the Canary Islands. Until the description of *S. lanzarotensis* by Mallwitz (1984) nothing was known about the Ostracoda fauna of the Canary Islands (Martens, 1984).

The most common species in the samples studied is *Plesiocypridopsis newtoni*, present in 13 out of the 38 samples studied. Other common species are *Cypridopsis vidua* and *Cypretta seurati*, both present in 9 samples and *Heterocypris incongruens*, present in 7 samples. *Sarscypridopsis lanzarotensis* was found in 3 samples from Tenerife.

The taxonomy of *Plesiocypridopsis newtoni* and *Sarscypridopsis lanzarotensis* will be discussed below. The ecology and distribution of these species and of *Cypretta seurati* is mentioned briefly.

MATERIAL AND METHODS

Specimens of *S. lanzarotensis* from Tenerife were compared with the type-specimens of this species from Lanzarote, which are deposited in the Zoological Museum and Zoological Institute of the University of Hamburg, Germany.¹⁾

A list of stations with species of Ostracoda encountered will be published in a future article. All samples studied are deposited in the Institute of Taxonomic Zoology in Amsterdam.

NOTES ON THE MOST COMMON SPECIES

Family: Cyprididae Baird, 1845

Subfamily: Cypridopsinae Kaufmann, 1900

Sarscypridopsis lanzarotensis (Mallwitz, 1984) nov. comb. (fig. 1)

Material Studied

Paratype specimens: Zoologisches Museum Hamburg, K-32509. Temporary spring basin

¹⁾ The Klie collection at the Zoological Museum in Hamburg is on permanent loan from the University of Kiel.

near Haria, Lanzarote. Leg. Wilkens, February 1980. About 100 female specimens.

Station 87-33. Small sikker-spring from cliff on the beach in La Rayeta, Punta del Hidalgo, Tenerife. 25-IV-1987. Cond. 3.51 mS/cm. 21 females (L = 0.67-0.73 mm).

Station 87-124. Various cave basins, filled by drip water in Cueva del Agua, near El Balayo, Tenerife. 14-V-1987. Gravel & sand, 1-2 m above high-water level. Cond. 1.49 mS/cm. Over 1000 females (adults and juveniles) (L = 0.66-0.72 mm).

Station 87-127. Small rimmed gully near entrance of Cueva del Agua, near El Balayo, Tenerife. 14-V-1987. Cond. 15.40 mS/cm. 51 females (L = 0.72-0.77 mm).

Taxonomy

This species was first described as *Cypridopsis lanzarotensis* by Mallwitz (1984) from the isle of Lanzarote.

The specimens studied are from two stations located in the Cueva del Agua, near El Balayo on the island of Tenerife (Stations 87/124 & 87/127), and from a small spring near the beach in La Rayeta, Punta del Hidalgo on the same island (Station 87/33). This is the second recorded collection of *S. lanzarotensis*.

The genus *Cypridopsis* s.l. includes species belonging to several phylogenetic lineages. It has recently been split into three new genera: *Cypridopsis* s. str., *Plesiocypridopsis* Rome 1965, and *Sarscypridopsis* McKenzie, 1977. The most recent review of these genera is given by Marmonier et al. (1989).

The mode of ventral carapace closure and the morphology of the furcal rami are characters which allow the species to be quickly assigned to each of the three genera. The furcal rami are illustrated in Meisch (1988: fig. 6). A generic key for these genera and the related genus *Potamocypris* will be given in Meisch (1990, in press).

In the species studied the right valve overlaps the left. The reverse is true in *Cypridopsis* s. str. The furcal rami are even more reduced than in the genus *Plesiocypridopsis*. In the genus

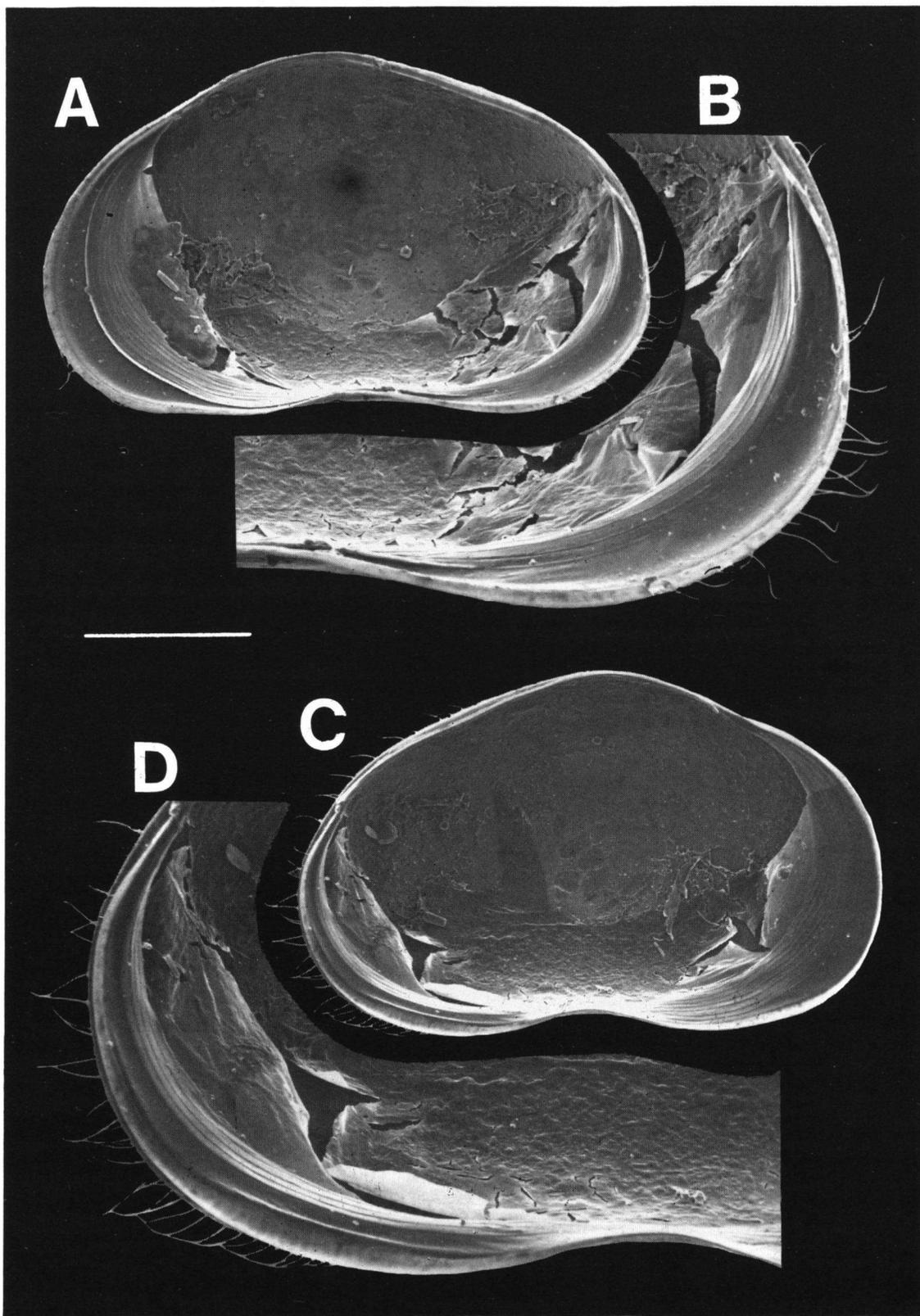


Fig. 1. *Sarscypridopsis lanzarotensis*. A: Right valve, internal view. B: Right valve, posterior detail of A. C: Left valve, interior view. D: Left valve, posterior detail of C. Scale: 0.20 mm. Tenerife, Cueva del Agua).

Plesiocypridopsis the trunk of the furcal rami is cylindrical and abruptly narrows where the terminal seta starts. In the studied species the trunk is not cylindrical but gradually narrows towards the terminal seta. Therefore the species has to be assigned to the genus *Sarscypridopsis*.

The diagnostic features of *S. lanzarotensis* are as follows:

- surface of valves totally smooth (without pits);
- natatory setae of the second antenna (A2) extend beyond the tip of the terminal claws by about 20% of their total length;
- distal joint of the maxillular palp is cylindrical, about twice as long as wide;
- third masticatory lobe of the maxillula has two slender teeth, one of them is distinctly barbed;
- vibratory plate of the maxilla has five filaments;
- walking leg (T1) is five-jointed (penultimate joint divided).

Examination of the specimens from Tenerife shows that they differ in a few details from the original description of the species by Mallwitz (1984). Comparison of the three samples from Tenerife showed them to be the same as the type-specimens from Lanzarote.

The original description of the species has to be modified as follows:

- the anterior outer margin of the left valve is smooth. Contrary to Mallwitz's statement it does not bear small tubercles;
- the swimming setae of the second antennae are slightly longer than shown in the original description (fig. 3, p. 176);
- the two long anterior setae on the second and third joint of the walking leg, and the grouped setae on the second joint are longer and the terminal claw is less broad in its proximal part than shown in the original description (fig. 7, p. 176);
- the valves are light green (probably the pigmentation in living specimens is an even stronger green).

The male of *S. lanzarotensis* is not known.

Ecology and Distribution

Sarscypridopsis lanzarotensis was recorded from a spring catchment basin on Lanzarote by Mallwitz (1984). Prof. Stock found the species in a cave basin and a small rimmed gully in the Cueva del Agua on Tenerife as well as in a small spring on the beach. This could mean that we are dealing with a troglophile species, but the presence of distinct carapace pigmentation as well as long swimming setae on the second antennae indicate that the species is a troglone rather than a troglophile species. Further research will have to establish whether *S. lanzarotensis*, like the other Ostracoda species that were found in Prof. Stock's samples, is also native to the African continent.

Plesiocypridopsis newtoni (Brady & Robertson, 1870) (Fig. 2)

This is the most common species in the samples studied. Males as well as females were found to be present.

Material Studied

Plancius Expedition, station 85-575. Well at Playa de las Coloradas, Lanzarote. 6-I-1986. Cond. 3.12 mS/cm. 22 male specimens (L = 0.67-0.74 mm) and 44 female specimens (L = 0.67-0.75 mm).

Plancius Expedition, station 85-579. Salt mill (??) at Punto de Mujeres, Lanzarote. 7-I-1986. Cond. 33.2 mS/cm. 2 adult males (L = 0.62 and 0.68 mm).

Plancius Expedition, station 86-583. Man-made reservoir on southside of Isle of Alegranza. 8-I-1986. Cond. 2.88 mS/cm. 5 male specimens (L = 0.63-0.73 mm) and 11 female specimens (L = 0.75-0.79 mm).

Station 87-45. Ajibe Verodal Playa, Isla d'Hierro. 29-IV-1987. Covered concrete container, water-table + water depth: 1 + 0.25 m. Cond. 2.36 mS/cm. 19 male specimens (L = 0.62-0.72 mm) and 21 female specimens (L = 0.72-0.85 mm).

Taxonomy

The arrangement of the seminiferous tubules in the male is an important diagnostic character at generic or even family level in cypridid ostracods. Until now it has not been described for *P. newtoni*. The tubules are shown in fig. 2 C. Their arrangement was also checked in males from Corfu (leg. Stephanides, specimens included in the Klie collection from Zoological Museum Hamburg). The tubules form a simple loop in the anterior part of the carapace and run dorsally towards the posterior end, where they form a second simple loop. One or two tubules originate in the anterior dorsal end and run ventrally to the posterior end of the carapace. The tubules of *P. insidiosa* as illustrated by Rome (1965) are arranged nearly identically.

The morphology of the male prehensile organ on the maxilla is an important taxonomic character at species level. The prehensile organs of the males from the Canary Islands (see fig. 2 A & B) are practically identical with those figured by Gauthier (1928) for specimens from North Africa. The furcal rami are missing in the males we dissected. The absence of the furca in males is most probably a common feature of all Cypridopsinae (see also Martens & Meisch 1985).

Other important diagnostic features of *P. newtoni* are:

- small, shallow pits and dense, stiff setae on the surface of the valves;
- grass-green coloured carapace;
- swimming setae of A2 slightly but distinctly extending beyond the tips of the terminal claws;
- third masticatory process on the maxilla has two delicately barbed teeth;
- the maxillar vibratory plate has two branchial filaments.

Ecology and Distribution

P. newtoni is known to tolerate higher salinities. The specimens at Punto de Mujeres were found at a conductivity value of 33.2 mS/cm. Accord-

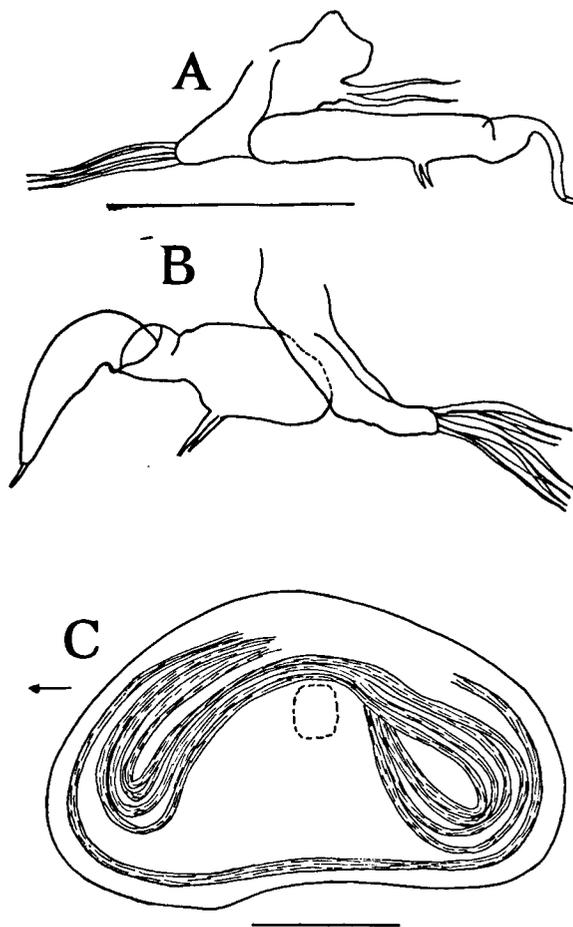


Fig. 2. *Plesicypridopsis newtoni*, male. A: Right prehensile organ. B: Left prehensile organ. C: Right valve with seminiferous tubules. Large scale: 50 μ m for A and B; small scale: 0.20 mm for C. Isle of Aegranza.

ing to Margalef (1953) the species occurs in waters containing 0.13-0.56 g Cl⁻/l.

Males were first reported by Brehm (1924) from the Sahara, and are now known to occur throughout the African continent. In Europe bisexual populations are restricted to southern areas: Spain (Brehm 1925); the regions near the Black Sea in Bulgaria (Klie 1937); Corfu (Stephanides, 1948); and Portugal (Paulo & Moutinho, 1983). All populations reported from central and northern Europe as well as from central Asia are parthenogenetic. Gauthier (1928) recorded parthenogenetic as well as sexually reproducing populations from North Africa (Algeria and Tunisia).

Subfamily Cypridinae Hartmann, 1963
Cyprretta seurati Gauthier, 1929

Taxonomy

The genus *Cyprretta* (Vavra, 1895) Müller, 1898 comprises more than 40 nominal species mainly distributed in subtropical and tropical regions (Kempf 1980). Because of incomplete original descriptions, it is difficult, if not impossible to identify most of the species belonging to this genus. The specimens from the Canary Islands have the diagnostic features described by Gauthier (1929) for specimens from North Africa, by Petkovski (1957) for specimens from Yugoslavia, and by Meisch (1987) for specimens from southern France.

Ecology and Distribution

Cyprretta seurati is known from North Africa (Algeria and Lybia), the Central Sahara, Chad and Sudan (Martens 1984). In Europe it was found in Yugoslavia (Petkovski 1957), in southern France (Meisch 1987) and in Spain (Forés et al. 1988).

C. seurati is one of the more common species in the samples studied. *Cyprretta* species were also found to be common in wells, caves, springs and other habitats in southern Japan and the Caribbean islands (Broodbakker 1984, 1988). The specimens from Japan have up to now been assigned to *C. seurati*. This will have to be confirmed by detailed examination and comparison of European, African, and Japanese specimens. As in the Canary Islands, *Cypridopsis vidua* and *Heterocypris incongruens* were also found to be very common in southern Japan (Broodbakker, 1988).

ACKNOWLEDGMENTS

We wish to thank Prof. Dr J. H. Stock for allowing us to examine the samples he collected on the Canary islands. We would like to express our gratitude to Prof. Dr. Gerd Hartmann and Mr. Hans Petersen (University of Hamburg) for the loan of the type-material of

Sarscypridopsis lanzarotensis and one sample from the Klie collection including *Plesiocypridopsis newtoni* from Corfu (leg. Th. Stephanides). Dr. Karel Wouters is acknowledged for assistance with the scanning electron microscope at the Institut Royal des Sciences Naturelles de Belgique in Brussels.

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Received: December 6, 1989