

Fig. 8 - *Rhoocypiris getieni*, female. A: maxillula, Mx. B: maxiliped, the arrow points to the palp. C: cleaning leg. D: walking leg. E: furcal ramus and furcal attachment. Scale bar, 100 µm for all.

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**Freshwater Ostracoda (Crustacea) collected  
on La Gomera (Canary Islands), with a  
redescription of *Cypridopsis obesa* (Brady &  
Robertson, 1869)**

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**Key words:** Freshwater Ostracoda, Macaronesia, Canary Islands, La Gomera, biogeography, ecology.

**Abstract:**

During the course of detailed investigations of the freshwater fauna of the island La Gomera in 1991, 1992 and 1994 nine species of freshwater Ostracoda were found, only four of which were previously known from La Gomera. Two of the species, *Herpetocypris brevicaudata* Kauffmann, 1900 and *Cypridopsis obesa* Brady & Robertson, 1869, are new to the Macaronesian region. Two other species, *Cypridopsis lusatica* Schäfer, 1943 and *Potamocypris villosa* (Jurine, 1820), are reported from the Canary Islands for the first time, although they occur in other parts of Macaronesia. Scanning electron micrographs of the carapace and valves, and a differential diagnosis of *Cypridopsis obesa* are provided. Representative physico-chemical data of several of the sampling sites are given. Maps providing a preliminary overview of the distribution of the species on La Gomera are added. Furthermore, *Cypridopsis lusatica* Schäfer, 1943 is reported from one locality in Tenerife and *Sarscypridopsis lamariensis* from Fuerteventura.

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## 1. Introduction

With a total area of 370 km<sup>2</sup>, La Gomera is the second smallest of the seven major islands belonging to the Canary archipelago. The Canary Islands are situated in the Atlantic Ocean off the coast of Africa. Together with Madeira and the Cape Verde Islands, the Canary Islands belong to the biogeographical region known as Macaronesia (Kunkel, 1987). La Gomera is renowned for its well-preserved Tertiary laurel forest which still covers most of the central highland area and forms the major part of the Garajonay National Park. This area is drained by numerous streams, some temporary, others perennial. A detailed study of the freshwater habitats within and outside the boundaries of the National Park has been carried out by Beyer (1993). Subsequent studies followed in 1994. A representative cross-section of streams and other aquatic habitats was investigated. The ostracod fauna was not the main focus of attention in this study, but as a number of interesting species were recorded, it seemed justified to present the results separately here.

To date, only relatively few papers dealing with the freshwater ostracod fauna of the Canaries have been published: Mallwitz, 1984; Meisch & Broodbakker, 1990, 1993\*; Baltanás & Gárefa Avilés, 1993\*, Meisch et al., 1995. The papers marked with an asterisk include records from the island of La Gomera. Up till now the following freshwater ostracod species were known to occur on La Gomera: *Pseudocandona albicans* (Brady, 1864); *Heterocypris salina* (Brady, 1868); *Cypræta senrati* Gauthier, 1928; *Cypridopsis vidua* (O.F. Müller, 1776); *Sarsocypridopsis lanzarotensis* (Mallwitz, 1984); *Herpetocypris chevreuxi* (Sars, 1896) (= *Herpetocypris helenae* G.W. Müller, 1908).

The aim of the present study is to update our knowledge of the ecology and distribution of the ostracod fauna in the Canary Islands, in particular La Gomera, and to complete the information about little known species.

## List of the species collected in 1991, 1992 and 1994 in La Gomera

Phylum or subphylum Crustacea Pennant, 1777

Class Ostracoda Latreille, 1806

Subclass Podocopa Müller, 1894

Order Podocopida Sars, 1866

Superfamily Cypridoidea Baird, 1845

Family Candonidae Kaufmann 1900

Subfamily Candoninae

*Pseudocandona albicans* (Brady, 1864)

Family Cyprididae

Subfamily Cyprinotinae

*Heterocypris incongruens* (Ramdohr, 1808)

Subfamily Herpetocypridinae

*Herpetocypris brevicaudata* Kaufmann, 1900

*Herpetocypris chevreuxi* (Sars, 1896)

Subfamily Cypridopsinae

*Cypridopsis vidua* (O.F. Müller, 1776)

*Cypridopsis obesa* Brady & Robertson, 1869

*Cypridopsis lusatica* Schäfer, 1943

*Sarsocypridopsis lanzarotensis* (Mallwitz, 1984)

*Potamocypris villosa* Jurine, 1820

## 2 Material and methods

In spring (March to May) 1991, autumn (September to October) 1991, spring and summer (April to July) 1992 and in summer (July to September) 1994, samples of aquatic invertebrates were collected in various parts of the island of La Gomera. 76 sampling sites representing a range of different freshwater habitats were selected for the study. Some of the main sampling sites were further divided into subsampling sites (a, b etc) in order to take various microhabitats into account. Only those sites (23) in which Ostracoda have so far been found are mentioned in this paper.

Animals were collected with the usual methods, i.e. capturing with a finely-meshed hand-net, sifting substrate with a sieve and microscopic analysis of the substrate. Specimens were preserved in 70 % ethanol.

At several sampling sites, physicochemical analyses were carried out. Water temperature was determined with a mercury thermometer (capable of readings accurate to 0.5 °C), pH with a pH meter (WTW pH 95). The following tests (MERCK) were used for further examination: chloride (Aquamerek 11 106); total hardness (Aquamerek 8039); calcium (Aquamerek 11 110); magnesium (Aquamerek 11 131).

The specimen collection is currently lodged with the first author (G.B.). Dissections and voucher specimens have been deposited with the second author (C.M.).

## 3. List of sampling sites with respective species

Numbering of the sampling sites follows that of the first author during her studies on La Gomera (see Beyer 1993). The following abbreviations are used in the text: m a.s.l. = metres above sea-level; spm = specimen; f. = ad. female; subad. = subadult; juv. = juvenile; e.ep. = empty carapace; diss. = dissection; (Δ) = specimens found during aquarium studies using substrate from the respective sampling site.

4b: El Cedro stream, permanent, in exposed location, stream-bed rocky, with luxuriant moss and filamentous algal growth. 400 m a.s.l.,

UTM: 28RBS 83/15.

*Sarscypridopsis lanzarotensis*. 05.07.1992; 1 f.

5a: El Cedro stream, permanent, in exposed location, dammed up immediately before entering a reservoir. Stream-bed muddy, vigorous growth of *Apium nodiflorum*. 410 m a.s.l., UTM: 28RBS 83/14. 72, 364, 365, 366

*Herpetocypris chevreuxi*. 05.07.1992; ca 30 f., many subad. and juv.; 17.06.1992; 1 f.

*Sarscypridopsis lanzarotensis*. 05.07.1992; 30 f.; 26.05.1992 (S. cf. *lanzarotensis*). 1 f. (crashed spm).

5b: Same station, stream-bed rocky, with luxuriant moss and filamentous algal growth. Physicochemical data (05.06.1992): water temperature: 14.5 °C; pH 7.7, total hardness: 4.8°dH; Ca<sup>2+</sup>: 10 mg/l; Mg<sup>2+</sup>: 0-100 mg/l; Cl<sup>-</sup>: 42 mg/l.

*Herpetocypris chevreuxi*. 17.06.1992; ca 30 f., many subad. and juv.; 07.06.1992 (Δ); 1 juv. (L=1.65 mm).

*Sarscypridopsis lanzarotensis*. 05.06.1992; 1 f. (L=0.71 mm); 07.07.1992 (Δ); 1 f.; 17.06.1992; 30 f.

6: El Cedro stream, permanent, in exposed location, stream-bed muddy with some larger rocks. Rocks with luxuriant moss and filamentous algal growth. 790 m a.s.l., UTM: 28RBS 82/14. Physicochemical data (11.06.1992): water temperature: 13.5°C, pH 7.6; total hardness: 3.6°dH; Ca<sup>2+</sup>: 18 mg/l; Mg<sup>2+</sup>: 0-100 mg/l; Cl<sup>-</sup>: 36 mg/l.

*Sarscypridopsis lanzarotensis*. 20.07.1992 (Δ; 1 f. L=68 mm; 11.06.1992; 7 f.; 1 e.ep.

7. El Cedro stream, permanent, in exposed location near human habitation, visibly polluted with domestic sewage, substrate muddy, anaerobic. 810 m a.s.l., UTM: 28RBS 82/14. Physicochemical data (03.06.1992): water temperature: 14.8°C, pH 7.6; total hardness: 4.2°dH; Ca<sup>2+</sup>: 10 mg/l; Mg<sup>2+</sup>: 0-100 mg/l; Cl<sup>-</sup>: 42 mg/l.

*Pseudocandona albicans*, 19.07.1992 (A); 1 f. ( $L=0.84$  mm).

*Sarscypridopsis lanzarotensis*, 11.06.1992; ca 60 f. ( $L=0.67-0.73$  mm, 5 animals were measured); 19.07.1992 (A); 1 f. ( $L=0.72$  mm); 20.07.1992; 3 f.

8b: El Cedro stream, permanent, within shady laurel forest, stream-bed sandy and stoney, in parts muddy. *Nasturtium officinale* and *Apium nodiflorum* present. 870 m a.s.l., UTM: 28RBS 82/13. Physicochemical data (02.06.1992): water temperature: 12.0°C, pH 7.7; total hardness: 4.2°dH;  $\text{Ca}^{2+}$ : 12 mg/l;  $\text{Mg}^{2+}$ : 0-100 mg/l;  $\text{Cl}^-$ : 36 mg/l.

*Cypridopsis lusatica*, 03.07.1992; 1 f. ( $L=0.63$  mm).

9: El Cedro stream, near Ermita de N. Sra. de Lourdes, permanent, within shady laurel forest, stream-bed stony and rocky. 930 m a.s.l., UTM: 28RBS 81/12.

*Herpetocypris brevicaudata*, 16.10.1991; 1 f. ( $L=1.82$  mm).

11b: Spring of El Cedro stream system, substrate sandy and muddy, vigorous plant growth. 980 m a.s.l., UTM: 28RBS 81/12. Physicochemical data were determined at sampling site 11a which is situated approx. 1 m away from 11b (15.06.1992): water temperature: 11.5°C; pH 7.5; total hardness: 4.0°dH;  $\text{Ca}^{2+}$ : 16 mg/l;  $\text{Mg}^{2+}$ : below detection limits;  $\text{Cl}^-$ : 34 mg/l.

*Sarscypridopsis lanzarotensis*, 11.07.1992 (A); 3 f.

*Cypridopsis lusatica*, 11.07.1992 (A); 2 f.

26a: Meriga, permanent stream, within shady laurel forest. 830 m a.s.l., UTM: 28RBS 80/16. Physicochemical data (08.06.1992): water temperature: 13.2°C, pH 7.3; total hardness: 3.8°dH;  $\text{Ca}^{2+}$ : 20 mg/l;  $\text{Mg}^{2+}$ : 0-100 mg/l;  $\text{Cl}^-$ : 50 mg/l.

*Herpetocypris chevreuxi*, 08.06.1992; 1 f. ( $L=2.18$  mm).

*Herpetocypris brevicaudata*, 08.06.1992; 1 subad. 28.08.1994; 1 f.

*Sarscypridopsis lanzarotensis*, 28.08.1994; 1 f

27a-f: Meriga, permanent stream in exposed location with series of interconnected pools, vigorous plant growth in watercourse between pools (*Nasturtium officinale* and *Apium nodiflorum*), pools with *Lemna gibba* and filamentous algae. 840 m a.s.l., UTM: 28RBS 80/16. Physicochemical data (14.06.1992): water temperature: 16.0°C, pH 7.6; total hardness: 5.0°dH;  $\text{Ca}^{2+}$ : 20 mg/l;  $\text{Mg}^{2+}$ : 0-100 mg/l;  $\text{Cl}^-$ : 62 mg/l.

*Herpetocypris chevreuxi*, 09.03.1991; 3 f.; 27.03.1991; 4 f. ( $L=2.28-2.37$  mm); 04.04.1991; 4 f., 2 juv. ( $L=2.14$  mm, 1 diss.); 22.04.1991; 2 f.; 23.09.1991; 1 f. ( $L=2.04$  mm), 1 juv., 1 e.ep.; 01.10.1991; 16 f., 20 juv.; 13.10.1991; many spms ( $L=2.16-2.38$  mm); 13.10.1991; 6 f., 1 juv., 1 e.ep.; 14.10.1991 (A); 3 f. ( $L=2.30-2.33$  mm, 1 diss.); 20.07.1992 (A); 1 f. ( $L=2.23$  mm); 10.08.1994; ca 50 f. and juv. ( $L=2.08$  mm, one spm was measured).

*Herpetocypris brevicaudata*, 26.09.1991; 2 f. ( $L=1.73$  mm); 14.10.1991; 5 f., 3 juv. ( $L=1.70-1.75$  mm, 1 diss.); 31.05.1992; 3 f. ( $L=1.80-1.82$  mm); 09.07.1992; 1 f. ( $L=1.77$  mm, diss.).

*Herpetocypris* sp. 01.10.1991; 1 subad. ( $L=0.98$  mm).

*Sarscypridopsis lanzarotensis*, 27.03.1991; 4 f.; 26.09.1991; 1 subad. f.; 31.05.1992; ca 50 f., many juv.; 01.06.1992; 1 f. ( $L=0.67$  mm); 24.06.1992; 3 f.; 18.07.1992; 1 f., 2 juv.; 10.08.1994; ca 70 f. and juv.

*Cypridopsis vidua*, 09.07.1992 (A); 1 f. ( $L=0.73$  mm).

*Cypridopsis lusatica*; 10.08.1994; 17 f. and subad.

*Cypridopsis obesa*; 10.08.1994; 8 f. and 1 subad. ( $L=0.70-0.74$  mm).

34: Rockface, permanently wet (typical hygropetric habitat), in exposed location between Palmita and Meriga. Some algal growth. 750 m a.s.l., UTM: 28RBS 82/17.

*Cypridopsis lusatica*, 23.09.1991; 1 f. ( $L=0.61$  mm).

*Sarscypridopsis lanzarotensis*, 11.08.1994; 1 f.

37: Rockface, permanently wet (typical hygropetric habitat), and run-off water at its base, in exposed location by road between Arure and Valle Gran Rey. Some algal growth. 800 m a.s.l., UTM: 28RBS 72/13.

*Heterocypris incongruens*, 20.07.1992 (A); 9 f.

*Sarscypridopsis lanzarotensis*, 11.07.1992; 1 f. (L=0.67 mm), ♀ juv.; 15.07.1992; 7 f.; 20.07.1992 (A); 10 f., 7 juv.; 03.09.1994; 10 f. and juv.

*Cypridopsis lusatica*, 03.09.1994; 2 f. (L=0.50-0.53 mm).

38a-d: Agua Jerba Huerto, spring pool and spring brook with series of interconnected pools, permanent, in exposed location, vigorous plant growth (*Nasturtium officinale*, *Apium nodiflorum*, moss and filamentous algae). 1230 m a.s.l., UTM: 28RBS 78/12. Physicochemical data (09.06.1992): water temperature: 12.0°C, pH 6.1; total hardness: 2.2°dH; Ca<sup>2+</sup>: 12 mg/l; Mg<sup>2+</sup>: 0-100 mg/l; Cl<sup>-</sup>: 22 mg/l.

*Cypridopsis lusatica*, 11.10.1991; 1 f.; 18.05.1992 (A); 1 f. (L=0.66 mm).

*Sarscypridopsis lanzarotensis* 04.10.1991; 1 juv.

*Potamocyparis villosa*, 04.10.1991; 1 f. (L=0.81 mm); 11.10.1991; 2 f. (L=0.79-0.81 mm, 1 diss.).

38d: Agua Jerba Huerto, open man-made sedimentation basin, bottom of basin muddy, exposed location. 1230 m a.s.l., UTM: 28RBS 78/12.

*Cannatrichis villosa*, 22.06.1992 (A); 1 f. (L=0.81 mm) di ♀, 2 juv.

39a-d: Fuente Erque, permanent spring in *Salsola* scrub followed by a small waterfall on exposed rock, most of water is fed into open irrigation channel, some water follows natural course forming a small muddy stream. *Nasturtium officinale* present. 980 m a.s.l., UTM: 28RBS 78/10. Physicochemical data (07.07.1992): water temperature: 16.0°C, pH 7.6; total hardness 7.2°dH; Ca<sup>2+</sup>: 8 mg/l; Mg<sup>2+</sup>: 0-100 mg/l; Cl<sup>-</sup>: 22 mg/l.

*Cannatrichis villosa*, 07.07.1992; 1 f., 1 juv. (1 diss.) (L=0.57 mm)

an 0.51 mm); 22.07.1992 (A); 1 f.

*Sarscypridopsis lanzarotensis*, 02.07.1992; 1 f. (L=0.71 mm, diss.); 07.07.1992; 4 f. (L1-L4=0.69 mm), 3 juv.

43b: La Fuente Cercado, shallow water channel with muddy bottom flowing from nearby spring, exposed location. Much *Apium nodiflorum* and *Lemna minor*. 1010 m a.s.l., UTM 28RBS 75/12.

*Herpetocypris chevreuxi*, 02.10.1991; 1 f. (L=1.99 mm), 5 subad., juv.; 11.10.1991 (A); ca 60 f. and subad. (L=2.06 mm); 02.10.1991; f., ca 20 juv.

*Herpetocypris brevicaudata*, 02.10.1991; 2 f. (1 diss.).

*Sarscypridopsis lanzarotensis*, 02.10.1991; 1 f., 1 juv.

44a: El Cercado, Fuente Los Tanquillo, small spring-pool in exposed location, substrate sandy and muddy. 1000 m a.s.l., UTM: 28RBS 75/12.

*Herpetocypris chevreuxi*, 13.05.1992; 12 f., ca 12 juv. (L=2.16-2.28 mm).

*Cypridopsis vi hu*, 13.06.1992 (A); 1 f.

*Sarscypridopsis lanzarotensis*, 13.05.1992; ca 32 f. (1 diss.), many juv.; 04.06.1992 (A); 1 f.; 13.06.1992; 5 f., 12 juv.

50a-b: Rockface, permanently wet (typical hygropetric habitat) and run-off water at its base, exposed location, by road between Arure and Valle Gran Rey. 500 m a.s.l., UTM: 28RBS 73/12.

*Sarscypridopsis lanzarotensis*, 18.08.1994; ca 200 f. and juv. (L=0.58-0.71 mm. 5 animals were measured).

51b: Barranco de las Lagunetas (Agua Oscura), pools of a temporary stream with stagnant water. 1100 m a.s.l., UTM: 28RBS 76/13.

*Herpetocypris chevreuxi*, 04.08.1994; 3 f. and 3 juv.

*Sarscypridopsis lanzarotensis*, 04.08.1994; 3 f. (L=0.66-0.69 mm).

animals were measured).

*Potamocypris villosa*. 04.08.1994: 5 f. ( $L=0.56-0.61$  mm, 3 animals were measured, 1 diss.).

66: Small pool at the base of a wet rockface, by the roadside near Ermita de N. Sra. del Buen Paso, 1220 m a.s.l., UTM: 28RBS 79/09.

*Herpetocypris brevicaudata*. 27.08.1994: ca 500 f. and juv. (1 diss.).

*Cypridopsis hisatica*. 27.08.1994: few spms in large sample ( $L=0.54$  mm, 1 animal was measured).

*Sarscypridopsis lanzarotensis*. 27.08.1994: few spms in large sample.

*Potamocypris villosa*. 27.08.1994: 3 f. ( $L=0.65-0.68$  mm).

70: Small spring above La Dehesa (Chipude), 1030 m a.s.l., UTM: 28RBS 76/11.

*Herpetocypris brevicaudata*. 01.09.1994: ca 20 f. and subad. ( $L=1.56-1.63$  mm, 1 diss.).

*Cypridopsis hisatica*. 01.09.1994: 3 f. and 8 juv.

71: Open water tank above La Dehesa (Chipude), 1030 m a.s.l., UTM: 28RBS 76/11.

*Herpetocypris chevreuxi*. 01.09.1994: 5 f. ( $L=1.70-1.92$  mm).

72: Barranco de los Manantiales, small open water tank near Chipude, 1040 m a.s.l., UTM: 28RBS 75/11.

*Herpetocypris chevreuxi*. 01.09.1994: 1 f. ( $L=2.09$  mm), 3 subad.

74b: Barranco de la Cuesta (Degollada Fria), pool of a temporary stream in small laurel forest glade, 970 m a.s.l., UTM: 28RBS 76/14.

*Pseudocandona albicans*. 02.09.1994: 1 f. ( $L=0.88$  mm, 1 diss.).

76: Spring-brook of El Cedro stream system, within laurel forest, near Ermita de N. Sra. de Lourdes, 940 m a.s.l., UTM: 28RBS 81/12.

*Herpetocypris brevicaudata*. 06.09.1994: 13 f. ( $L=1.7-1.9$  mm, 5 animals were measured, 1 diss.).

#### 4. Notes on species

##### *Pseudocandona albicans* (Brady, 1864)

Syn.: *Candona parallela* G.W. Müller, 1900.

Only two female specimens were found. One in a stream, at a place where the water is polluted with domestic sewage, and another in a pool with stagnant water.

*Pseudocandona albicans* inhabits both permanent and temporary ponds. It has also been found in the littoral zone of lakes, in springs, underground waters and slightly salty waters. Males are very rare, which accounts for the fact that the majority of populations reproduces parthenogenetically. The species is distributed throughout Europe, the western part of Asia and North America. Up to now it has not been recorded on the African continent (Martens 1984), where, however, its occurrence is to be expected.

In Macaronesia, the species has already been recorded from Tenerife and La Gomera (Meisch & Broodbakker 1993).

##### *Heterocypris incongruens* (Ramdohr, 1808)

Nine female specimens were collected in a pool. *H. incongruens* is an ecologically highly tolerant species. It lives in both permanent and temporary ponds with a preference, however, for the latter. Males of this almost cosmopolitan species are only known from the circum-Mediterranean regions and from central and eastern Europe.

In the Canary Islands *H. incongruens* is also known to occur on the islands of Fuerteventura and Tenerife (Baltanás & García-Avilés 1993). It has also been reported from the Azores (Meisch & Broodbakker 1993).

### *Herpetocypris brevicaudata* Kaufmann, 1900

About 550 female specimens were collected from seven stations. Three of the localities are streams, two are springs (one in shady laurel forest, the other in exposed location outside of the forest), one station is an open water channel, and one a small muddy pool under a wet rockface in exposed location.

*H. brevicaudata* is taxonomically a difficult species. It differs from the closely related *H. reptans* in the following features: (a) the carapace shows almost uniform greenish, without distinct dark green patches (with dark green patches in *H. reptans*); (b) of the reduced five A2 natatory setae, the fifth (= ventral) seta is the longest (in *H. reptans* the first natatory seta is the longest); (c) in frontal view the LV dorsally overlaps the RV (both valves approximately reach the same height in *H. reptans*).

*H. brevicaudata* prefers springs and waters flowing from springs. It has also been found in slow flowing ditches and, more rarely, in the littoral zone of lakes. The species is known from Europe and from North Africa. Bisexual populations have been reported from Portugal and North Africa only (Petkovski 1964).

The species is new to the Macaronesian region.

### *Herpetocypris chevreuxi* (Sars, 1896)

Syn.: *Herpetocypris helenae* G.W. Müller, 1908;

*Herpetocypris cf. helenae* Baltanás & García-Avilés, 1993.

More than 200 adult females and many subadult and juvenile specimens were collected in two streams, in a small water channel flowing from a nearby spring, in a small spring pool, in pools with stagnant water and in two open watertanks.

*H. chevreuxi* inhabits small permanent ponds, the littoral zone of lakes, slow flowing streams and swampy waters. It is known to occur in both freshwater and slightly salty coastal and inland waters. The species has a holarctic distribution. Males are unknown.

*H. chevreuxi* has been recorded repeatedly from La Gomera and Tenerife (Meisch & Broodbakker 1993; Baltanás & García-Avilés 1993; Meisch et al.

1995). It is also known from the Azores (see Meisch & Broodbakker 1993).

### *Cypridopsis vidua* (O.F. Müller, 1776)

The species was found in a pool of a permanent stream and in a small spring pool. Both habitats are not typical of the species, and this most probably explains why only two adult females and two juveniles were collected.

*C. vidua* prefers permanent ponds with much vegetation and the littoral zone of lakes. The species has a worldwide distribution. Males have never been found.

In Macaronesia, *C. vidua* is known from the islands of Fuerteventura, La Gomera, El Hierro and La Palma (Canary Islands) and from the Azores.

### *Cypridopsis obesa* (Brady & Robertson, 1869)

Syn.: *Cypridopsella tumida* Kaufmann, 1900.

One subadult ( $L=0.66$  mm) and eight adult females ( $L=0.70-0.74$  mm) were collected in a pool of a permanent stream.

When compared with *C. vidua*, *C. obesa* is readily recognized in the stereomicroscope by:

(a) the length of the carapace: 0.70-0.74 mm; (< 0.70 mm in *C. vidua*);

(b) the more or less uniform greenish colour of the carapace (usually with 3 or 4 conspicuous transverse bands in *C. vidua*).

We would like to point out that both the carapace shape and the sculpture (pits) of the valves of the *C. obesa* animals from La Gomera perfectly fit the variability range of *C. vidua*. It should be noticed that the carapaces of our *C. obesa* specimens appear barely more obese than those of a number of *C. vidua* animals of our collections from Europe.

The branchial plate of the maxilliped (this appendage is often but erroneously referred to as the 2nd maxilla) of our *C. obesa* specimens bears three filaments (*C. vidua* usually has 2, more rarely 4 or even only 3 filaments).

Close examination of the structure of the valves in the SEM reveals subtle but striking differences:

- (a) Right valve of *C. obesa*: antero-ventral outer marginal zone smooth; in *C. vidua* there is a row of tiny tubercles;
- (b) Left valve of *C. obesa*, anterior inner marginal zone (fig. 4): selvage peripheral; distal inner list with a row of ca 17 tiny spines; proximal inner list antero-ventrally undulated (fig. 4B; the arrows in fig. 4 point to the two lists). The groove situated between those two lists is densely covered in tiny spherical tubercles (fig. 4C and D). *C. vidua* lacks the tubercle bearing groove.

Taxonomic remarks: There is a lot of confusion about *C. obesa* in the zoologic literature. The confusion is due to the fact that *C. obesa* comes close to *C. vidua*, a cosmopolitan species which shows markedly variable in carapace size, colour and shape (but not in the structure of the inner marginal zones of the valves). Kaufmann (1900) redescribed *C. obesa* as *Cypridopsella tumida* from Switzerland. Various authors of the beginning of the century (Müller 1900, 1912; Alm 1915) considered *C. obesa* an infraspecific form of *C. vidua*. Sars (1925), however, maintained the species and provided a detailed redescription based on specimens collected in Norway. Farkas (1974) unsuccessfully tried to separate *C. obesa* and *C. vidua* using morphometric data; it is, however, doubtful if this author really examined animals belonging to *C. obesa*. More recently Rybeeky (1981) recorded *C. obesa* from Slovakia and provided some taxonomic data.

In our opinion the differential diagnosis of the two species should run as follows:

*C. vidua* (Müller, 1776): Size of carapace 0.45-0.65 mm. Carapace weakly to distinctly ovate in dorsal view. Valves usually densely covered in round distinct pits, more rarely with sparse shallow pits. Carapace greenish, usually with 3 to 4 conspicuous dark green transverse bands; the bands, however, show more or less undistinct in some specimens. Branchial plate of maxilliped usually with 2, more rarely with 4 or only 3 filaments. Males unknown. Distribution: cosmopolitan.

*C. obesa* Brady & Robertson, 1869: Size of carapace 0.70-0.77 mm. Carapace markedly obese in dorsal view. Valves (?always) covered in coarse, conspicuous round pits. Carapace uniformly green or with blurred dark patches. Right valve: anterior outer marginal zone smooth, without a row of tiny spinules. Left valve: inner anterior marginal zone with two weak lists: the distal one with a row of tiny spinules; the groove situated between the two marginal lists with tiny spherical tubercles. Branchial plate of maxilliped (?always) with 3 filaments. Males unknown. Distribution: northern, central and eastern Europe, ?North America, Canary Islands, Azores.

#### *Cypridopsis lusatica* Schäfer, 1943

Syn.: *Cypridopsis brincki* Petkovski, 1963. (For a complete list of synonyms see Petkovski et al. 1993).

Several adult females and some juveniles were collected in two permanent streams, in three springs, in a pool, and on a permanently wet rockface (typical hygropetric habitat).

The species also occurred in a sample collected in Tenerife (Barranco Infierno, 26.04.1992) by one of us (G.B.). The species is new to the fauna of La Gomera and Tenerife and to the Canary Islands in general.

*C. lusatica* prefers springs and waters flowing from springs, especially those in open fields (pastures). The species appears to be widespread in the circum-Mediterranean area; it is very rare in central and northern Europe (Petkovski et al. 1993). It has not been recorded from Africa, where it is most likely also to occur.

In Macaronesia, *C. lusatica* is also known from the Azores and from Madeira (Meisch & Broodbakker 1993; Petkovski et al. 1993).

#### *Sarscypridopsis lanzarotensis* (Mallwitz, 1984)

About 550 adult females and many juveniles were collected in springs, waters flowing from springs, in streams, and in isolated pools with stagnant water.

At present *S. lanzarotensis* is only known from the Canary Islands where it appears to be widespread. It was found in springs, waters connected with

springs, streams, wells and caves. Males are unknown.

To date, the species is known from the islands of La Gomera, El Hierro, Lanzarote, La Palma and Tenerife. In 1993 it was also collected by one of us (G.B.) on Fuerteventura (unpublished record).

#### *Potamocypris villosa* (Jurine, 1820)

Only a few adult females and many juveniles were collected in the pools of a permanent stream, in isolated pools with stagnant water and in an open man-made sedimentation basin. This species is new to the Canary Islands.

*P. villosa* prefers both springs and flowing as well as stagnant waters connected with springs. It is more rarely found in the littoral zone of lakes.

The species has a nearly world-wide distribution but is absent from Australia. Males are only known from north-western Spain (Martens & Meisch 1985) and from Italy (Margalef 1954).

*P. villosa* has also been recorded from the Azores.

## 5. Discussion

With respect to its ostracod fauna, very little is known from La Gomera, and only few isolated records exist in the literature (Meisch & Broodbakker 1993; Baltanás & Gárcía-Avilés 1993). Including the results of this study, eleven freshwater ostracod species are now known to occur on the island, and they are listed below. Five of them have been recorded for the first time on the island (\*), two are new for the Canary archipelago (\*\*) and further two are new to the Macaronesian region in general (\*\*\*).

#### Updated check-list of Ostracoda from La Gomera

*Sphaeromastoma albicans* (Brady, 1864)

*Heterocypris incongruens* (Ramdohr, 1808) (\*)

*Pseudocandona albidana* (Brady, 1868)

*Herpetocypris brevicaudata* Kaufmann, 1900 (\*\*\*)

*Herpetocypris chevreuxi* (Sars, 1896)

*Cypræta seurati* Gauthier, 1929

*Cypridopsis vidua* (F. Müller, 1776)

*Cypridopsis hispanica* Schäfer, 1943 (\*\*)

*Cypridopsis obesa* (Brady & Robertson, 1869) (\*\*\*)

*Sarscypridopsis lanzarotensis* (Mallwitz, 1984)

*Potamocypris villosa* (Jurine, 1820) (\*\*)

The distribution maps presented in this paper must be regarded as being provisional, as they reflect the results of the first more detailed study carried out on the island. Some parts of La Gomera which possibly contain suitable habitats are still waiting to be examined. However, certain general statements can already be formulated.

It appears as if *Sarscypridopsis lanzarotensis*, the only freshwater ostracod which so far has only been recorded from the Canary Islands, is the most widespread on La Gomera (found at 17 of the 23 sampling sites in which ostracoda occurred), showing no distinct preference to any one habitat. In addition, it has been found over a wide range of altitudes (400 m to 1230 m a.s.l.). More records at lower altitudes are to be expected, because the species has been collected from the adjacent islands (El Hierro and Tenerife) at nearly sea-level (Meisch & Broodbakker, 1993; Baltanás & Gárcía-Avilés, 1993).

The results to date indicate that the other species have a more restricted range. For instance, only two stations contained *Pseudocandona albicans*, a widespread species, obviously tolerant of polluted water. It was collected from a stream heavily contaminated with domestic sewage. *Heterocypris incongruens* and *Cypridopsis obesa* have only been found each at one of the sites.

With the exception of one sampling site visibly affected by human waste, the data of the chemical analyses show that the water of the examined stations is poor in nutrients, and that very little between-site variation occurs. It is therefore not possible to comment on the requirements and tolerances of the different ostracod species. More detailed investigations are necessary into this field.

More research into the way the various species coexist is also necessary. In this study, it was interesting to find three *Cypridopsis* species (*C. hisatica*, *C. vidua* and *C. obesa*) at the same sampling site (27: Meriga stream), all inhabiting the same habitat (pools) at nearly the same time of year (July-August).

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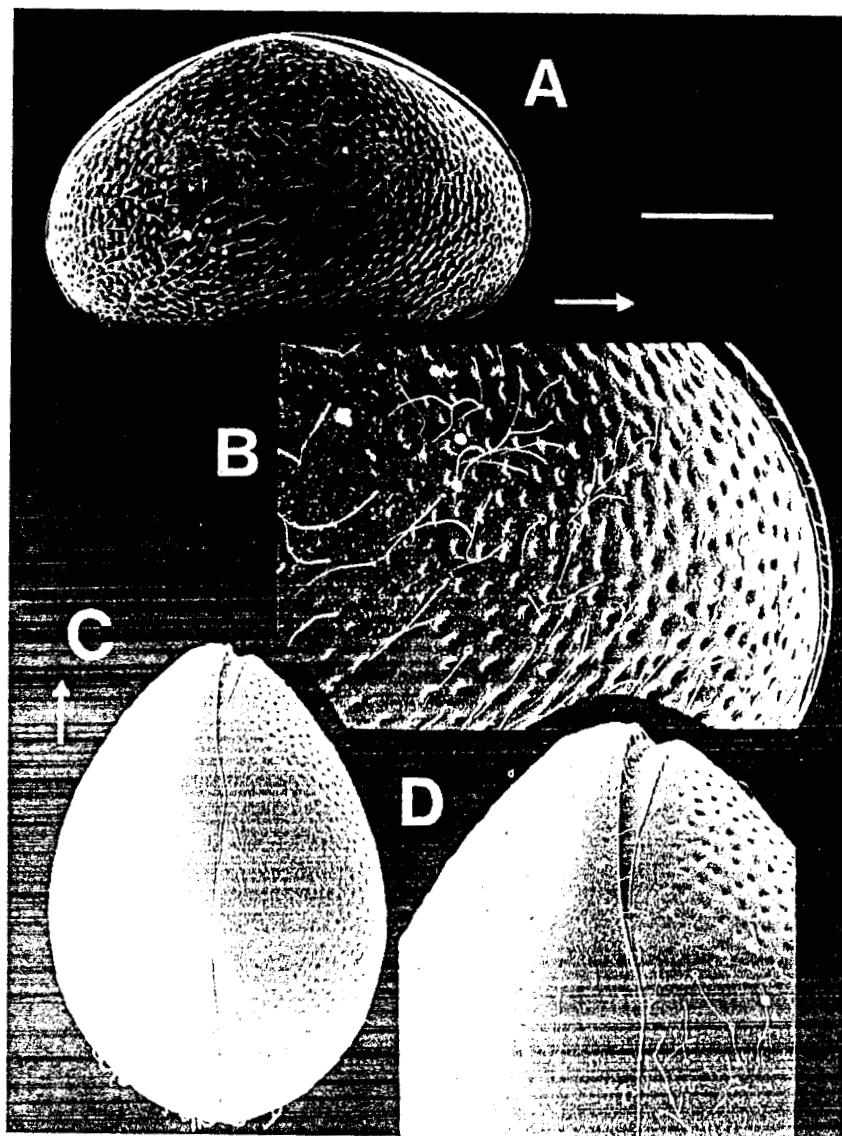


Fig. 1. - *Cypridopsis obesa*, female. La Gomera.  
A: carapace in lateral view. B: anterior detail of A. C: carapace in dorsal view. D: anterior detail of C. Scale bar: 0.20 mm for A and C.

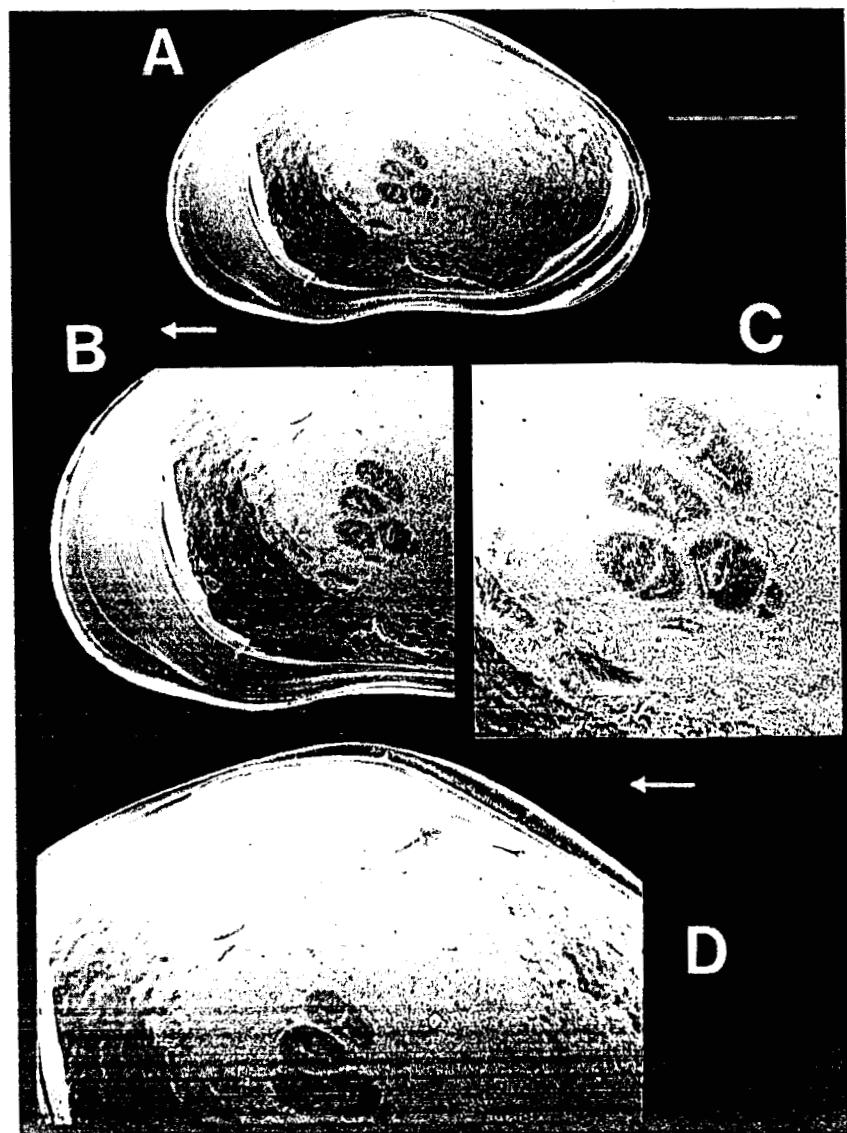


Fig. 2. - *Cypridopsis obesa*, female. La Gomera.  
A: right valve, inner view. B: anterior detail of A. C: central muscle scars, detail of B. D: hinge of the right valve, detail of A. Scale bar: 0.20 mm for A.

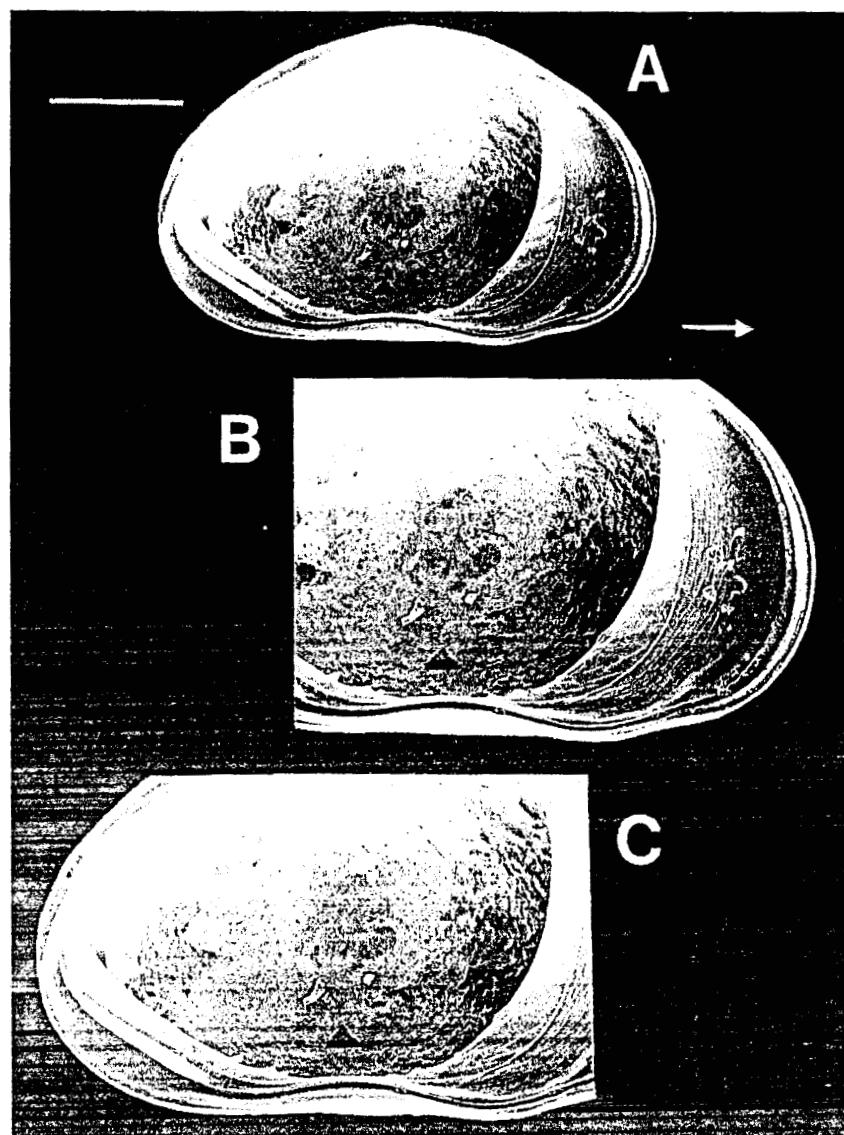


Fig. 3. - *Cypridopsis obesa*, female, La Gomera.  
A: left valve, inner view. B: anterior detail of A. C: posterior detail of A.  
Scale bar: 0.20 mm for A.

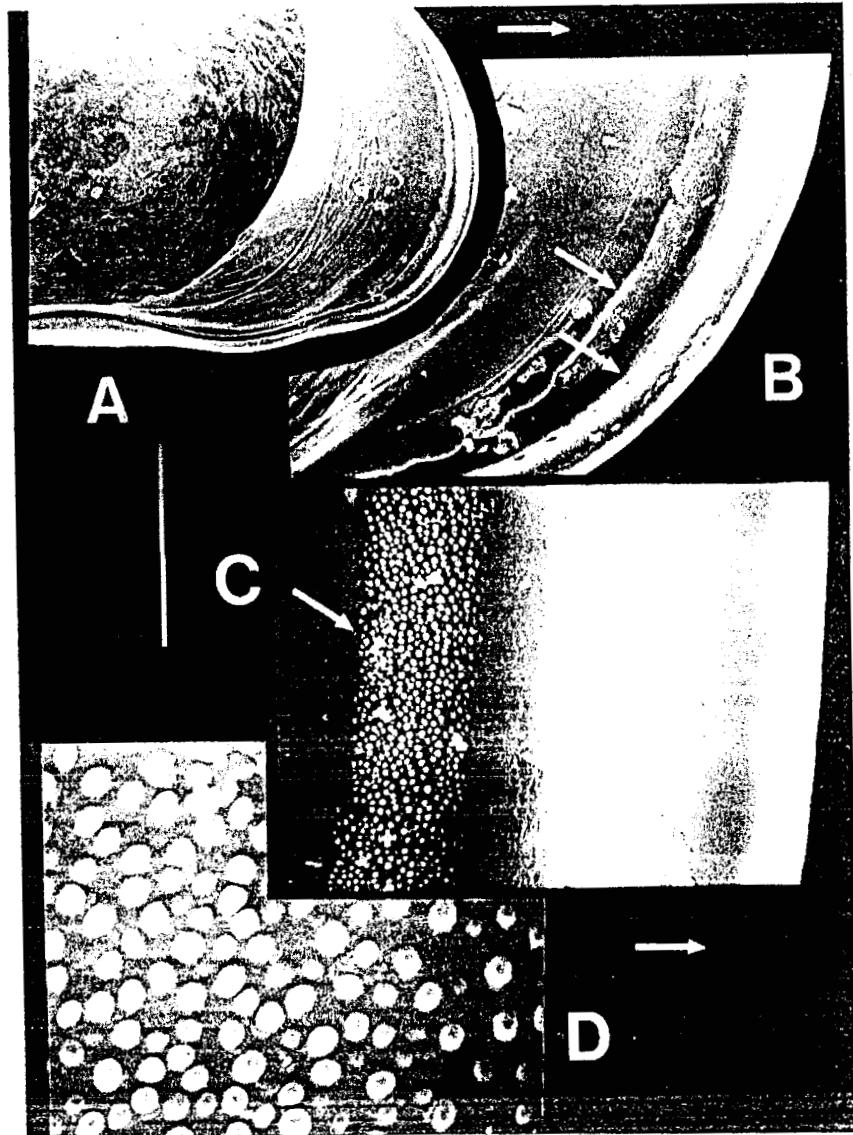
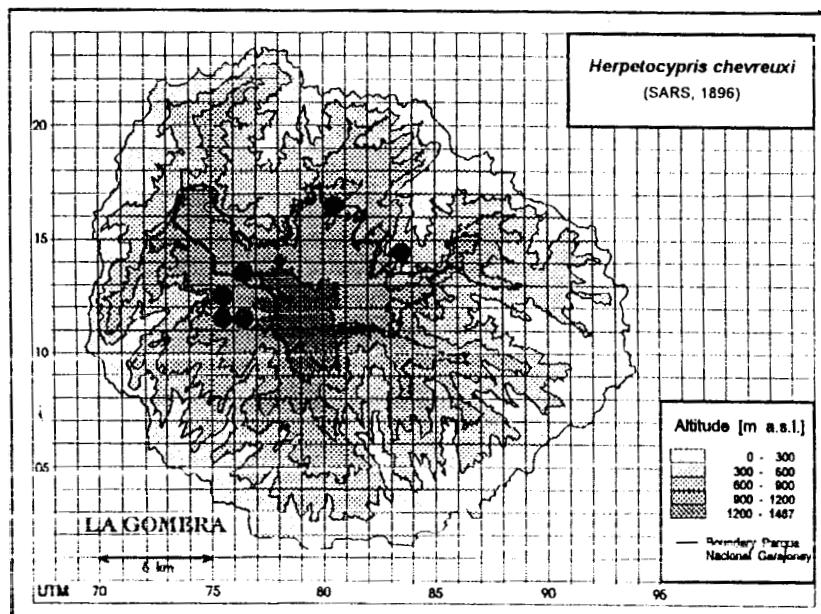
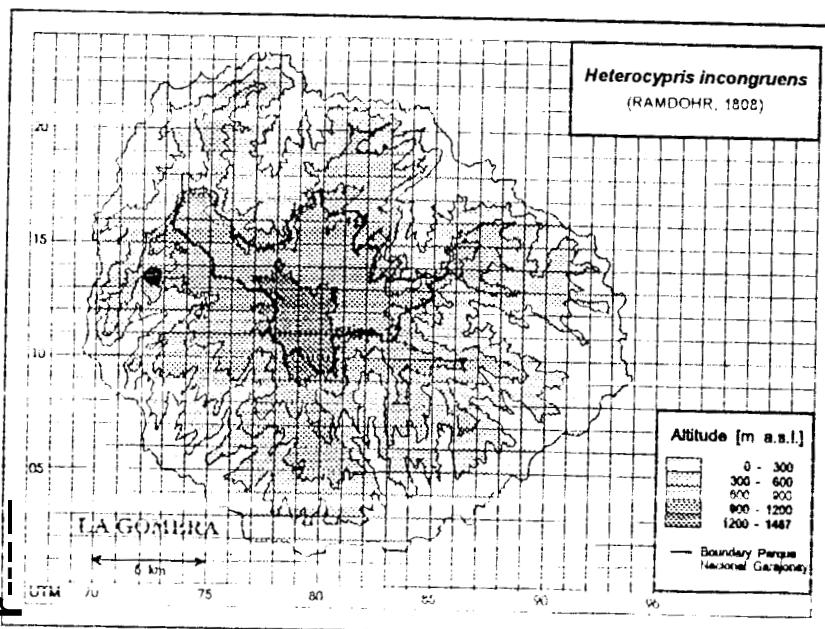
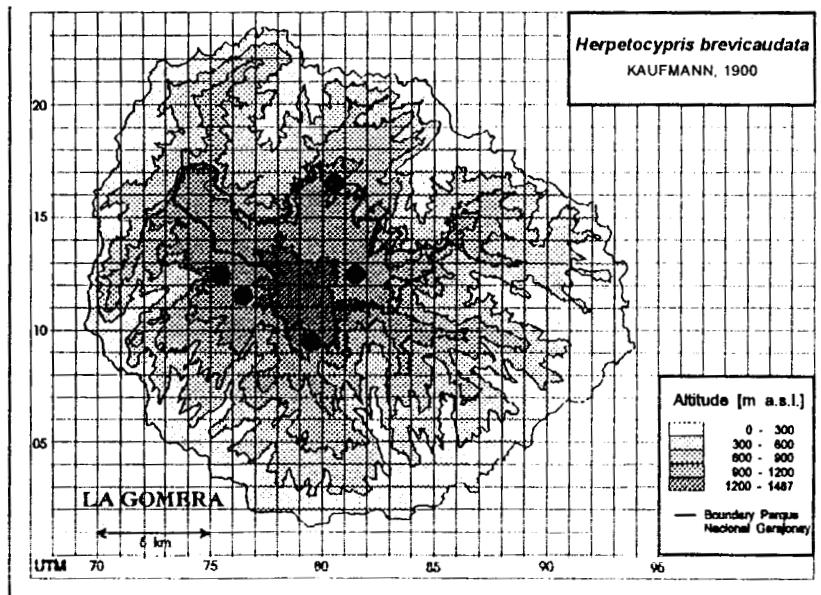
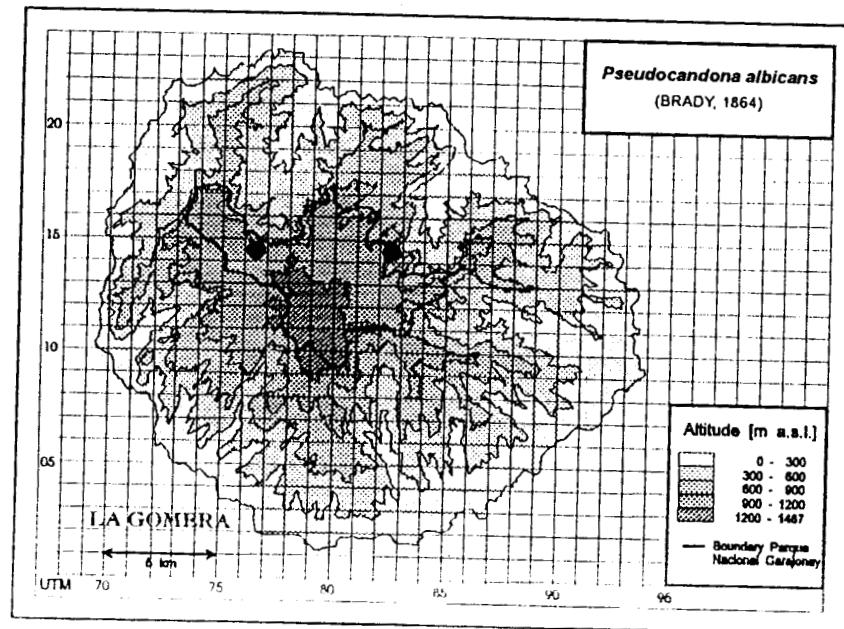
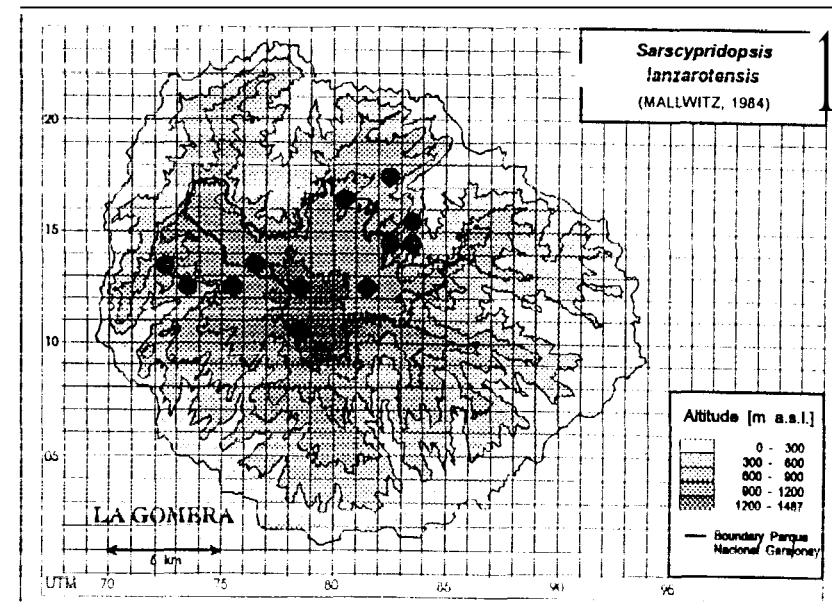
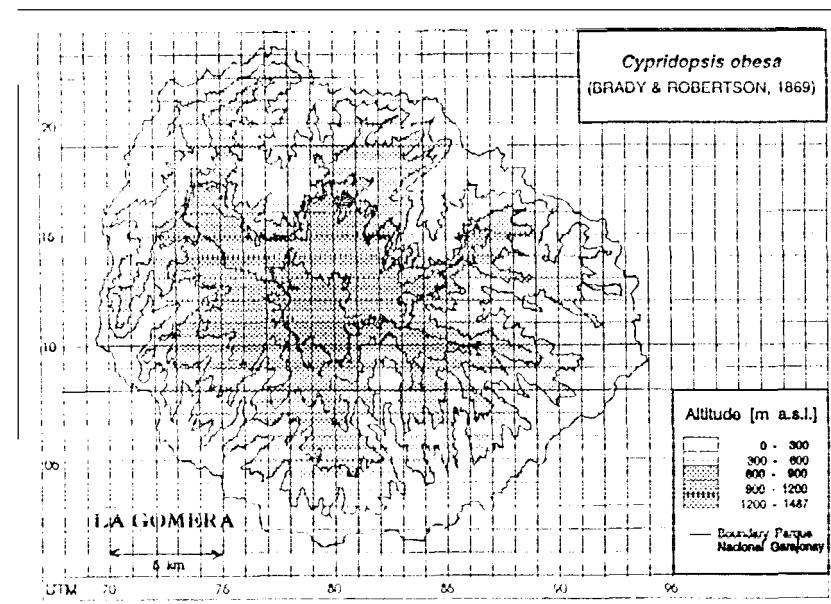
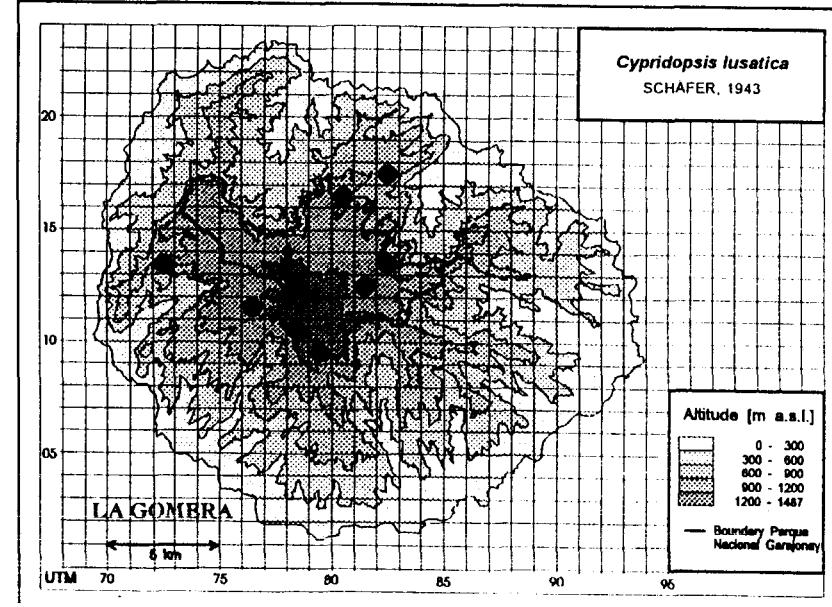
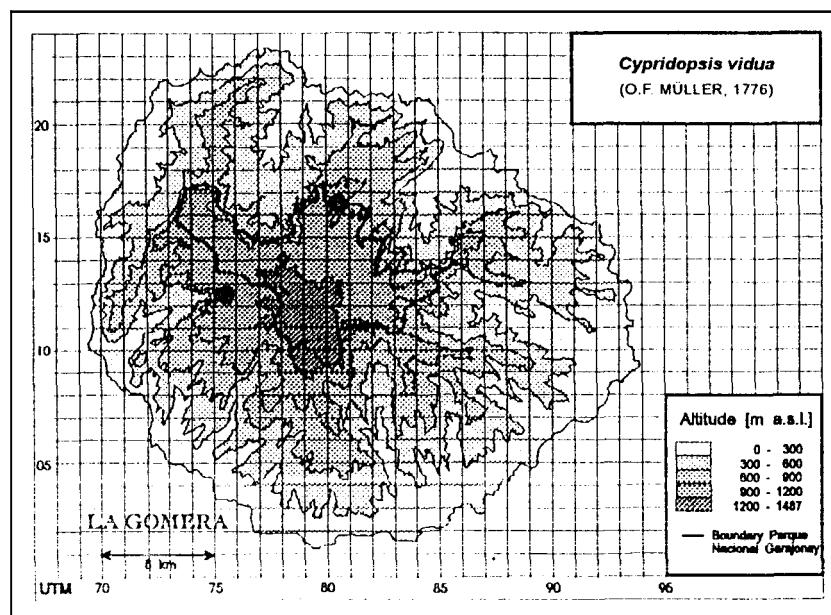
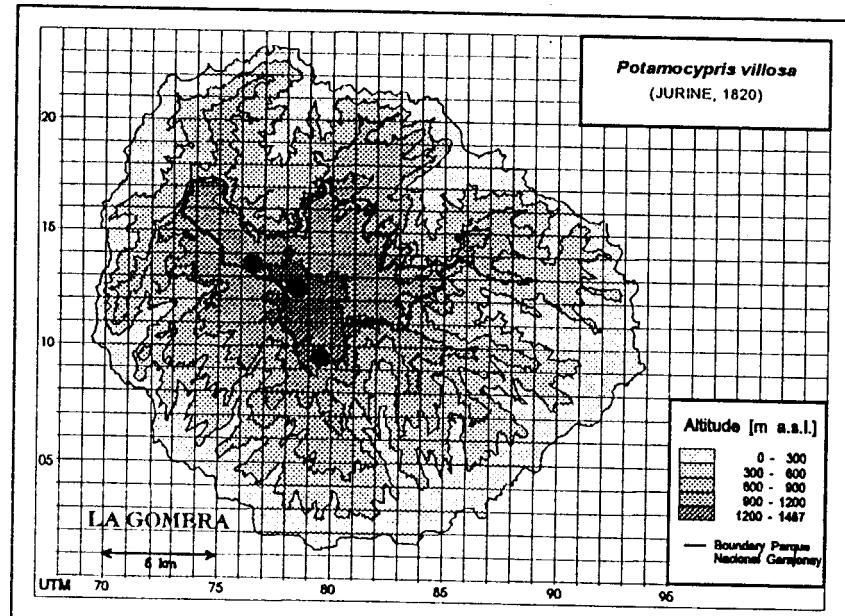


Fig. 4. - *Cypridopsis obesa*, female, La Gomera.  
A: LV, anterior marginal zone, inner view. B: detail of A; see the two lists (arrows) and the area between those lists. C: detail of B; see the distal spiniferous list and the area between the two lists. D: detail of C; see the tiny spherical tubercles. Scale bar: 0.20 mm for A.







Trav. sci. Mus. nat. hist. nat. Lux., 23, 1996

## Species of the genus *Stenocypris* Sars, 1889 from the rice-fields of Macedonia (Crustacea, Ostracoda)

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### Abstract:

The authors provide descriptions of two members of the genus *Stenocypris* (Ostracoda, Podocopida, Cypridoidea, Cyprididae, Herpetocypridinae) occurring in the rice-fields of Macedonia (former Yugoslavia): *Stenocypris bolicki* Ferguson, 1962, and *Stenocypris macedonica* nov. spec. The taxonomy of close relatives of *Stenocypris major* (Baird, 1859), the type species of the genus, is discussed. Three species groups are erected and characterized: (a) the *major*-group, with *Stenocypris major* (Baird, 1859), *Stenocypris major okuboi* n.sp., and *Stenocypris major skelti* n.sp.; (b) the *bolicki* group, with *Stenocypris bolicki* Ferguson, 1952; (c) the *intermedia*-group with *Stenocypris intermedia* Klie, 1932 and *Stenocypris macedonica* nov. spec.

### 1. Introduction

The genus *Stenocypris* was established by Sars (1889) for animals collected in Australia, which the author identified with *Cypris malcolmsoni* Brady,

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