

BEAUFORTIA

INSTITUTE OF TAXONOMIC ZOOLOGY (ZOOLOGICAL MUSEUM)
UNIVERSITY OF AMSTERDAM

Vol. 39, no. 2

July 17, 1989

COMPARISON BETWEEN THE LANDHOPPERS (AMPHIPODA: TALITRIDAE) OF THE GENUS *ORCHESTIA* FROM TENERIFE (CANARY ISLANDS) AND THE AZORES

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ABSTRACT

The terrestrial *Orchestia* from Tenerife (Canary Islands), currently recorded as *O. chevreuxi* De Guerne, 1887, is compared with material from the terra typica, the island of Faial in the Azores. It is concluded that the Tenerife populations belong to a different species, which we describe as *O. guancha* n. sp., whereas *O. mateusi* Afonso, 1977 is considered a junior synonym of *O. chevreuxi* (new synonymy).

INTRODUCTION

In 1887 De Guerne published a diagnosis (without illustrations) of a new species of *Orchestia*, *O. chevreuxi*, found in the caldera of Faial, one of the islands of the Azores archipelago. The same diagnosis was reprinted in De Guerne (1888a). In a slightly later paper, De Guerne (1888b) declared that his previous description was "incomplète parce que certains détails y sont omis, et surtout erronée, deux fautes d'impres-

sion l'ayant absolument dénaturée". The 1888b description, and the first figures, are of much better quality, but are unfortunately based on the female sex, which is the less characteristic of the two sexes in *Orchestia*. We have been unable to locate De Guerne's type specimens: they are neither found in the Muséum national d'Histoire naturelle, Paris, nor in the Institut Océanographique, Monaco.

In the same year, 1888, Chevreux provided a description and illustrations of *O. chevreuxi*, in

particular of the male, however this time based on specimens caught in the Mercedes Mountains, Tenerife, Canary Islands. Chevreux (1900) recorded several samples taken during the campaigns of the Prince of Monaco in 1887 and 1888 on the islands of Faial (Fayal), Flores, Corvo, and Graciosa (all in the Azores). As in 1888, he considered the animals from Tenerife identical with those from the Azores, although he noted (1888:92) that the carpus of the 7th pereopod was slightly more elongate in the latter.

The three factors mentioned above (certain imperfections in De Guerne's earlier papers, description based on the female sex, and the supposed identity of the Canarian and Azores populations), have confused the literature ever since.

O. chevreuxi has been recorded from all major islands of the Azores group (De Guerne, 1889; Chevreux, 1900; Dahl, 1967; Mateus et al., 1986): São Miguel, Santa Maria, Graciosa, Corvo, Faial, Pico, Terceira, and Flores. It is unknown, however, from Madeira (Dahl, 1967). Material previously considered to be identical with *O. chevreuxi* is known from Tenerife, Gran Canaria, Fuerteventura, and La Palma (all in the Canary Islands; cf. Chevreux, 1900: 4), but recent collections have shown that these belong to other species of *Orchestia*, *Palmorchestia*, or *Talitroides*.

The Tenerife form has been re-illustrated perfectly by Andersson, 1962. The plate in Chevreux (1900, Pl. I fig. 1) is most probably made using specimens from Tenerife as well (as is clear from the morphology of the propodus of gnathopod 2 ♂, the length width ratio of the carpus of pereipods 5 to 7 ♂, the armature of the propodus of the pereipods, etc.), although in the main body of his text (not in the Discussion) he records material collected in several islands of the Azores.

This has led to another complication: the alleged *O. chevreuxi* (from Tenerife), which has been redescribed and re-illustrated several times (Chevreux, 1988, 1900; Andersson, 1962), was gradually considered "the real thing". When Afonso (1977) studied a land-

hopper from Ilha Santa Maria (Azores), she apparently compared it with the illustrations of Canarian specimens, and concluded that "les différences sont tellement évidentes que nous dispensons d'en faire référence". On this (meagre) ground, Afonso described the Azores material as a new species, *O. mateusi*. In our opinion, *O. mateusi*, from the Azores is a subjective junior synonym of *O. chevreuxi*, likewise from the Azores (new synonymy). This implies that the Tenerife form should be given another name.

We have compared our material from Tenerife (mainly from the Mercedes Mountains, but also from some other localities), with a sample from Furna Ruin cave, Faial (Azores), collected by a cave research team directed by Drs. Pedro Oromí (Universidad de La Laguna) and Philip Ashmole (University of Edinburgh). Additional material from Faial, Caldeira ("Hirondelle" Stn. 192, Institut Océanographique, Monaco, 370300) has been studied, as well as samples from a number of other islands in the Azores: Terceira, near Agulhas (Zool. Mus. Amsterdam), Flores (Lagoa comprida Caldeira, Caldeira comprida, Fajemzinha, Caldeira secca), Corvo (Caldeira), Graciosa (Caldeira) (all in Inst. Océanogr., Monaco). Our study has revealed numerous differences between the Azores and Tenerife populations, supporting Afonso's idea that they are different species. Since the types came from Faial, this island is the type-locality for *O. chevreuxi*, whereas the animals from Tenerife are described as a new species, *O. guanacha*.

DESCRIPTIVE PART

Orchestia guanacha n. sp.

Material examined (all from Tenerife).—1 ♂ (holotype), 1 ♀ ovig. (allotype), 42 paratypes; Barranco de Igueste (Anaga), near Los Juncos, in *Sium* vegetation at bank of brooklet; altitude c. 125 m a.s.l.; 26 Nov. 1988 (ZMA Amph. 108.593).

25 paratypes; Montes de las Mercedes, Cruz del Carmen, in leaf litter; alt. 920 m; 12 Nov.

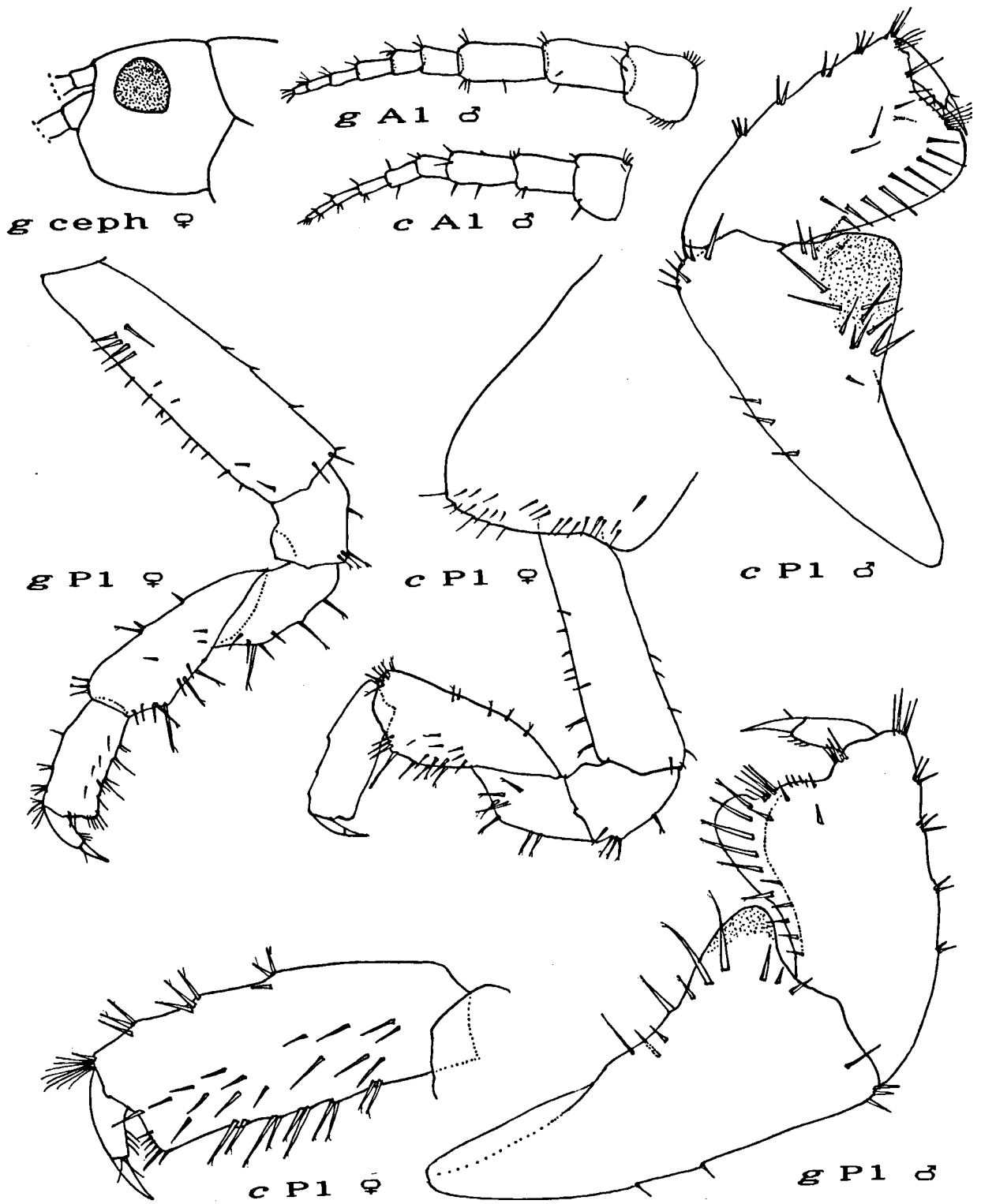


Fig. 1. *c* = *Orchestia chevreuxi* De Guerne, 1887, from Faial (Azores) and *g* = *O. guancha* n. sp. from the type-locality (Bar-ranco de Igueste, Tenerife).
 [A1 = first antenna; ceph = cephalic segment; P1 = first gnathopod.]

1986 (ZMA Amph. 108.594); 18 paratypes, same locality, but 10 Nov. 1988 (BMNH 1989.721).

Many other specimens from the north of Tenerife (Anaga and Mercedes Mountains), viz. from Afur, Las Carboneras, and N. of La Laguna, in altitudes between 500 and 950 m a.s.l. in ZMA.

Other, isolated, specimens have been examined from Cabeza del Tejo, La Orotava, Icod de los Vinos, and Garachico, 100-300 m a.s.l., all in north-west Tenerife. Chevreux (1900) records it from las Cañadas, above Icod el Alto, at an altitude of 2000 m.

The species lives on the humid forest floor (Laurisilva forest), under leaf litter, and on the bank of small streams and springs, in the roots of palustrine vegetation.

Comparative description of *O. guancha* (abbreviated *O.g.*) and *O. chevreuxi* (abbreviated *O.c.*).—

General habitus of *O.g.* illustrated by Chevreux, 1900, Pl. I fig. 1a. Adult males of *O.g.* up to 21 mm, ovigerous females 11-17 mm (*O.c.*: adult ♂ from Flores, 12.5 mm; according to De Guerne, 1888b, adult ♀ up to 15 mm). Eyes large, black, more or less circular (fig. 1g).

Antenna 1; Similar in both species (figs. 1 *c,g*); peduncle segment 2 perhaps slightly shorter in *O.c.* Flagellum 6-segmented (*O.c.* and *O.g.*).

Antenna 2 (see Andersson, 1962, fig. 18 for *O.g.*): Flagellum of adult ♂ not inflated, 18- to 22-segmented (up to 26-segmented in *O.c.*).

Upper lip, mandible, maxillae 1 and 2, and maxilliped (figures in Andersson, 1962) similar in both species. Left lacinia mobilis (fig. 2c) 4-dentate in both species. Lower lip: main lobes and lateral horns slightly narrower in *O.g.* (Andersson, fig. 22) than in *O.c.*

First gnathopod: Proximo-anterior end of medial surface of basis with group of bristles (♂, ♀, fig. 1g); such group absent in *O.c.* (fig. 1c). Carpus ♀ slightly more slender than in *O.c.* Carpus ♂ with posterior swelling, larger in *O.c.* than in *O.g.* Propodus ♀ slightly more

spinous in *O.c.* than in *O.g.* Posterior margin of propodus ♂ regularly convex in *O.c.* (fig. 1c), swelling restricted to distal part in *O.g.* (fig. 1g).

Gnathopod 2 ♂ (age variation in *O.g.*, see Andersson, figs. 4-16, 32): Ischium more or less L-shaped in *g*, less clearly so in *c* (fig. 2), Propodus in *O.g.* (fig. 29) much wider, more rounded, than in *O.c.* (fig. 2c); proximal lobe of posterior margin wide in *O.g.*, narrow in *O.c.*; palmar margin strongly convex in *O.g.*, with very strongly marked incision near palmar angle (less marked in young specimens); less strongly convex, incision hardly indicated in *O.c.* Finger heavy, regularly tapering in *O.g.*; thin, drawn out into a fine, narrow tip, in *O.c.*

Coxal gill of pereonite 2 ribbon-shaped, reaching to 75% of length of basis of gnathopod 2 (*g*), or sausage-shaped, reaching to 50% of length of basis (*c*). Coxal gill of P3 large, reaching almost to end of basis (*g*), or smaller, at most half as long as basis (*c*). Coxal gill P4 not reaching end of basis (*c, g*). Coxal gills of P5 and P6 rather small in *g*, still smaller in *c*, distinctly shorter than basis (figs. 4, 5).

Gnathopod 2 ♀ of *O.g.* (fig. 2g) rather similar to that of *O.c.* (fig. 2c), but basis of *O.g.* wider, and carpus of *O.g.* slightly less elongate.

Pereiopod 3: Carpus longer than that of P4 in both species (figs. 3c, g). Propodus in *O.g.* with fewer spine-groups than in *O.c.* Claw not pinched in both species. Pereiopods 3 through 7 cuspidactylate.

Pereiopod 4 (figs. 3c, g) showing differences in shape of coxal plate (wider, anterior margin more strongly sloping, in *O.g.*) and merus, carpus, and propodus (more spinous in *O.c.*). Claw "pinched" in both species.

Pereiopod 5 ♂ (figs. 4c, g): Posterodistal lobe of basis wider in *O.g.* than in *O.c.* Merus and carpus slightly more widened in *O.g.*; carpus of *O.g.* as long as merus, that of *O.c.* slightly longer than merus.

Pereiopod 6 ♂ (figs. 5c, g): Basis and merus of *O.g.* wider. Propodus of *O.c.* more elongated and much more spinous than in *O.g.*

Pereiopod 7 ♂ (figs. 5c, g): Posterodistal lobe of basis rounded, wide, and strongly overhanging in *O.g.*; truncate, narrow, and hardly

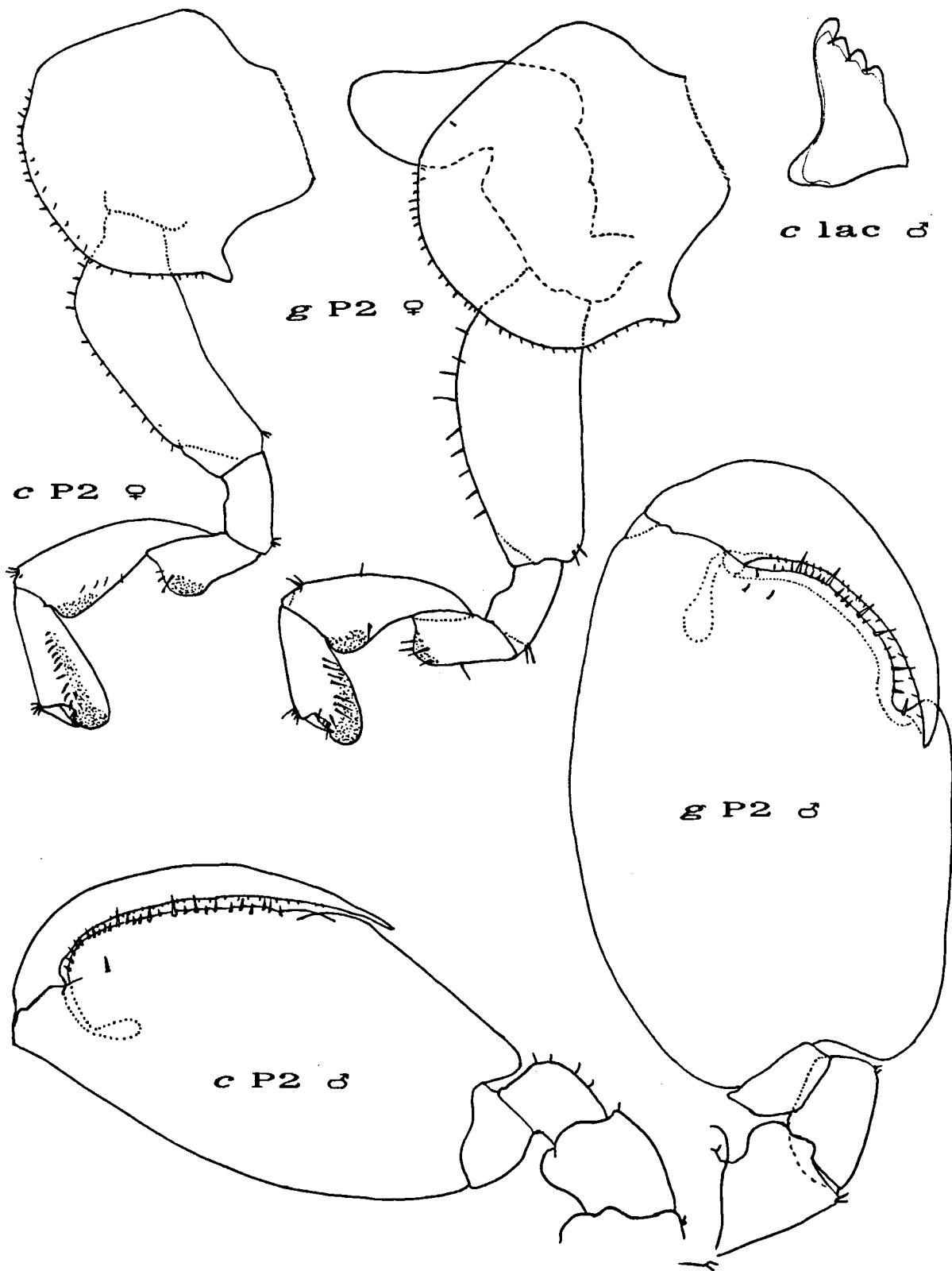


Fig. 2. *c* = *Orchestia chevreuxi* De Guerne, 1887 and *g* = *O. guancha* n. sp.
 [lac = left lacinia mobilis; P2 = second gnathopod.]

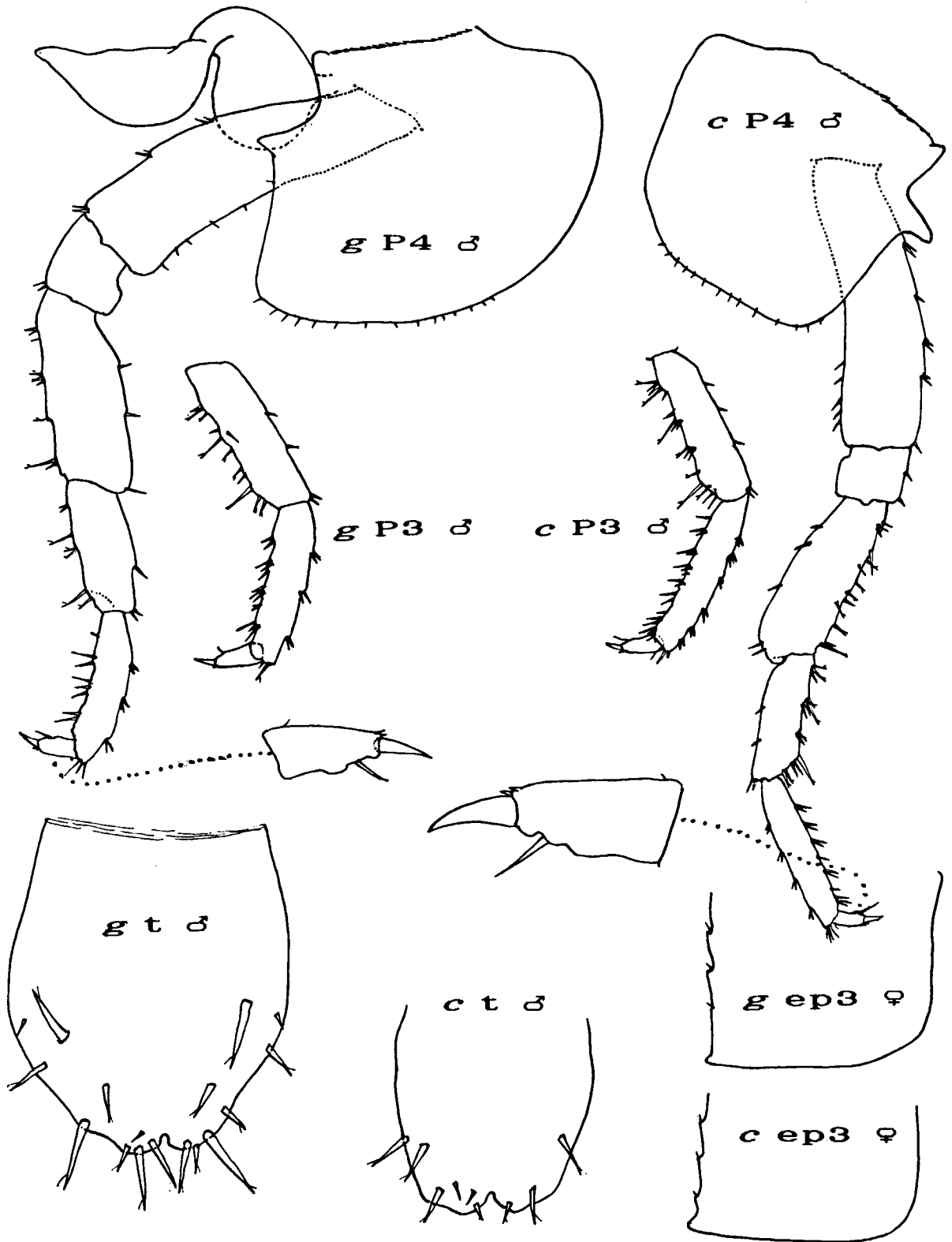


Fig. 3. *c* = *Orchestia chevreuxi* De Guerne, 1887 and *g* = *O. guancha* n. sp.
 [ep3 = third epimeral plate; P3 and P4 = third and fourth pereiopods; t = telson.]

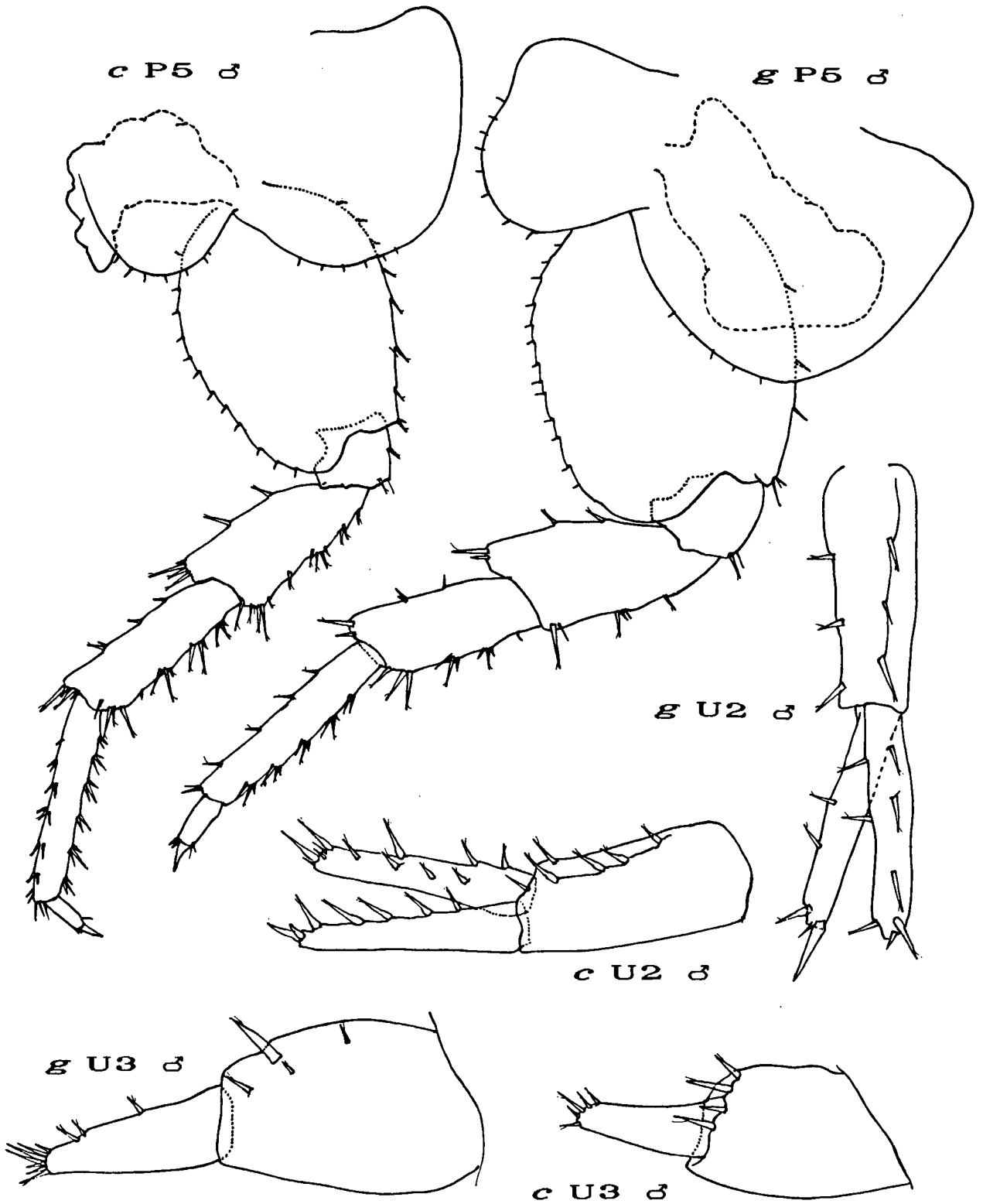


Fig. 4. *c* = *Orchestia chevreuxi* De Guerne, 1887 and *g* = *O. guancha* n. sp
 [P5 = fifth pereopod; U2 and U3 = second and third uropods.]

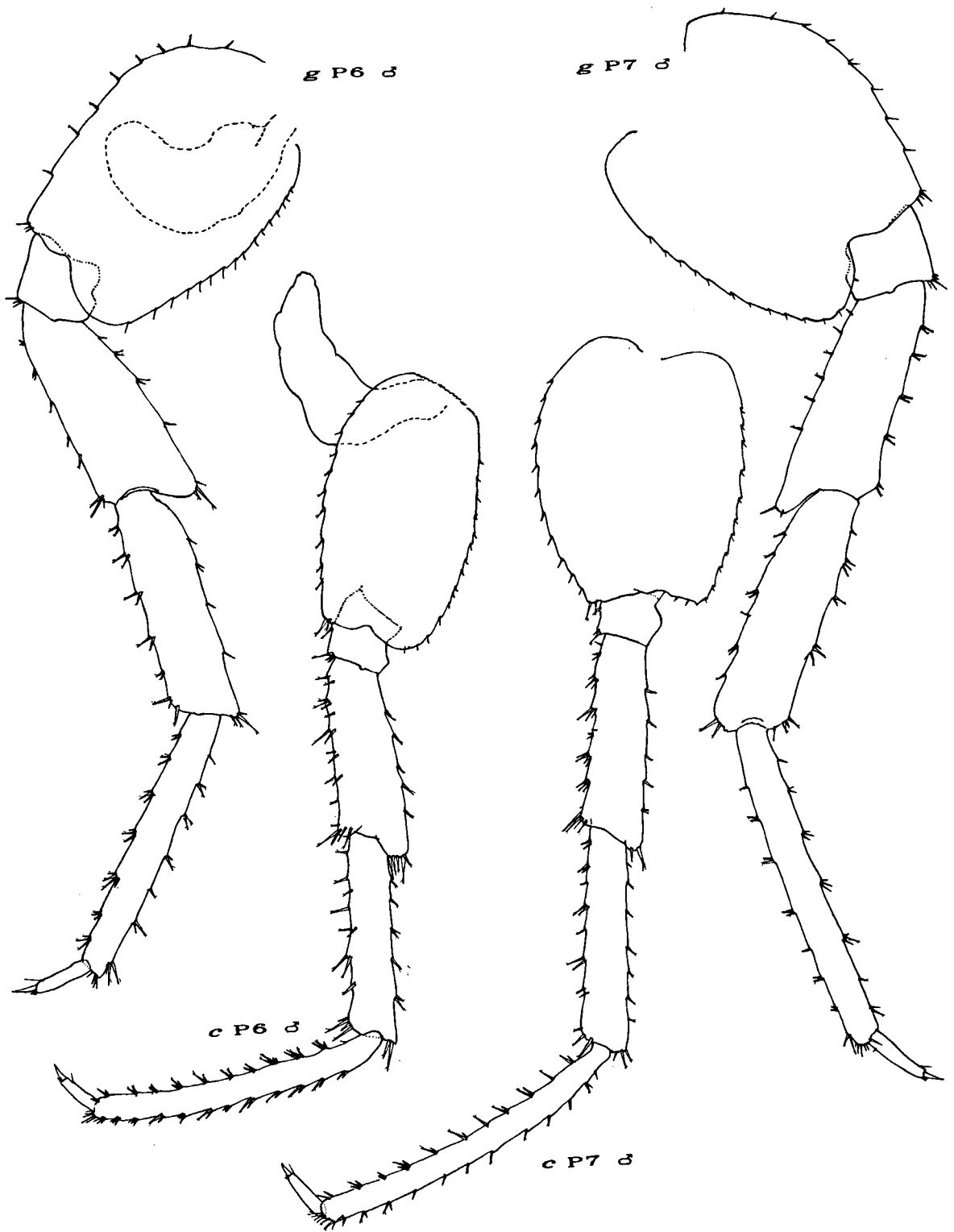


Fig. 5. *c* = *Orchestia chevreuxi* De Guerne, 1887 and *g* = *O. guancha* n. sp
[P6 and P7 = sixth and seventh pereopods.]

overhanging in *O.c.* Merus and carpus wider in *O.g.* Propodus much more spinous in *O.c.*

Sexual dimorphism in P5 to P7 practically non-existent in *O.c.*; in *O.g.* very slight (merus and carpus less widened in ♀).

Epimeral plates 2 and 3 (figs. 3*c*, 3*g*) with small but distinct posteroventral tooth and crenulate posterior margin in both species.

Pleopods: Rami of 5 to 7 segments in *O.c.*, of 7 to 10 segments in *O.g.*

Uropod 1 similar in both species. Rami of uropod 2 slightly richer in spines in *O.c.* (figs. 4*c*, 4*g*). Uropod 3: Peduncle in *O.c.* with terminal spines only (fig. 4*c*), with dorsal and terminal spines in *O.g.* (fig. 4*g*); ramus dorsally naked in *O.c.*, with some short spines in *O.g.*

Telson (figs. 3*c*, 3*g*) carrying more spines in *O.g.* than in *O.c.*

Life colour (*O.g.*): Dark green or brown.

Etymology.—The specific name, *guanacha*, is derived from the original people, the Guanches, that inhabited Tenerife before the European explorers disembarked in the Canary archipelago in the XIIIth century.

Remarks.—In several respects, the species from the Azores (*O. chevreuxi*) is more similar to *O. canariensis* Dahl, 1950 from Gran Canaria, than to *O. guanacha* from Tenerife. Based on the examination of several samples from Gran Canaria, we can make the following observations:

Points of resemblance between *O. canariensis* and *O. chevreuxi* are the shape of the claw and the poorly incised palmar margin of gnathopod 2 ♂, the dense spinosity of uropod 2, and the absence of a proximal row of bristles on the medial surface of the basis of gnathopod 1 ♂, ♀.

O. canariensis differs from *O. chevreuxi* in the less elongate carpus and less spinous carpus and propodus of P6 and P7, the larger coxal gill on P6, the slightly larger posteroventral lobe on the basis of P7, and the L-shaped ischium of Gn. 2 ♂.

Remark concerning the illustrations.—Figures of homologous appendages of *O.c.* and *O.g.* have been drawn to the same scale.

ACKNOWLEDGEMENTS

The present study has been executed under the NATO Collaborative Research Grants Programme, Contract SA. 5-2-05 (RG 001/88).

Drs. Miguel Ibañez and Pedro Oromí of the University of La Laguna have supported our work in the Canary Islands in various ways. The graduates Ronald Vonk (Amsterdam) and Elias Sánchez (La Laguna) have participated in part of the fieldwork.

We are indebted to Dr. J. Forest (Muséum national d'Histoire naturelle, Paris) and Dr. C. Carpine (Institut Océanographique, Monaco) for the loan of the specimens of terrestrial *Orchestia* from Macaronesia studied by Chevreux.

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Received: May 25, 1989

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