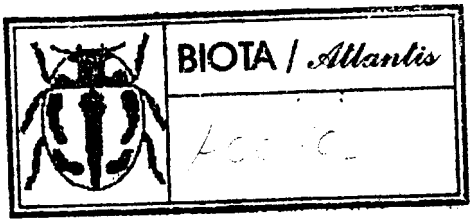

REVUE SUISSE DE ZOOLOGIE 104 (3): 559-585; septembre 1997

New species and records of pseudoscorpions (Arachnida, Pseudoscorpiones) from the Canary Islands

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New species and records of pseudoscorpions (Arachnida, Pseudoscorpiones) from the Canary Islands. – The following six new species are described: *Chthoniiis (Ephippiochthoniiis) grncilimnniis*, *Lagynochthonius curvidigitatus*, *Tyrannochthonius setiger* (Chthoniidae), *Halominniza oromii* (Olpiidae), *Pseudorhacochelifer cnnnriensis* (Cheliferidae), and *Allochernes longepilosiis* (Chernetidae). The species *Chthonius (C.) joniciis* Beier, *Microcreagrella cnecn* (Simon), *Rhncochelifer hoggarensis* Vachon, *Pachychelifer* (?) sp. and *Lamprochernes savignyi* (Simon) are recorded for the first time from this archipelago. *Microcrengrinn gomerae* Mahnert is sunk into synonymy of *Microcreagrina hispanicn* (Ellingsen). The new combination *Pseiidorhncochelifer spiniger* (Mahnert) n. comb. is proposed.

Key-words: Canary Islands - biospeleology - new species - Pseudoscorpiones - Canary Islands.

INTRODUCTION

BEIER (1975) summarized our knowledge of pseudoscorpions of the Macaronesian Islands, citing 18 species and subspecies from the Canary Islands. In subsequent publications (ESTANY 1979; MAHNERT 1980, 1986, 1989, 1993) this number increased up to (a surprising) 33. In this paper, 13 additional species are described or recorded for the first time from this archipelago, but the current number of 46 species (one species had to be relegated into synonymy) is certainly not the final one. The irnportance of different sampling methods in faunistic work is once again emphasized through the restricted species diversity present in the collections obtained by different methods (hand-sampling, sifting, pitfall-traps, window and bottle traps, Berlese and Winkler extraction). An intensive study of the fauna of volcanic lava tubes, carried out by Prof. Pedro Oromí and his team at the University of Laguna (Tenerife), yielded two more species of highly-adapted chthoniid species whose systematic affinities are unclear.

Manuscript accepted 12.01.1997

Acronyms:
DZUL Departamento de Zoologia de la Universidad de La Laguna, Tenerife, Spain
MHNG Muséum d'histoire naturelle, City of Geneva, Switzerland
MNHN Muséum national d'histoire naturelle, Paris, France

NEW **SPECIES** AND RECORDS

Chthonius (C.) jonicus Beier

Material studied: Hierro, Valverde, ravine below the village, 500 m a.s.l., sieved under opuntias, Ig. **CI.** Besuchet, 7.III.1983: **2** ♀.

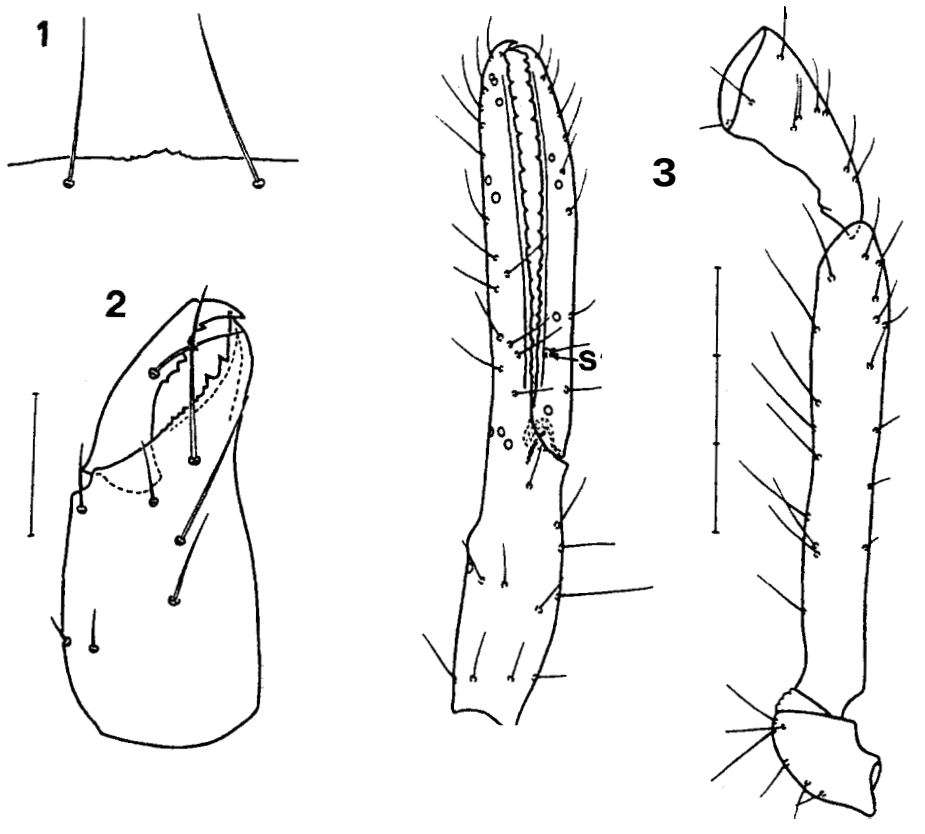
New to the Canary Islands; the species seems to be widespread throughout the Mediterranean basin (**HARVEY** 1991) and is easily recognized by the presence of 4 setae on the posterior border of carapace and the stout pedipalps.

Chthonius (Ephippiochthonius) gracilimanus n. sp. Figs 1–3

Material studied: La Palma, municipality of Mazo, Barranco el Cabrito (Tigalate): Salto de Tigalate, Ig. Rafael Garcia Becerra, pitfall-trap with beer and cheese, 300 m a.s.l., 7.1.1994: 1 ? (holotype) (DZUL). **3** ♂ **4** ♀ (paratypes; MHNG 2 ♂ 2 **P).**

Description: General colour whitish-yellow. Carapace 1.1–1.2 longer than broad, posteriorly slightly restricted; no epistome, anterior border medially rounded and dentate; two indistinct anterior eye-spots, posterior ones practically absent; 18 macrosetae (4:6:4:2:2) and one (rarely 2) preocular microseta on each side (length of central anterior macroseta 0.09–0.11 mm). Tergal setae: 4:4:4:4:6:6:6:6:6:6:4:6 (2 submedian tactile setae). Manducatory process with 2 setae, coxal setae: pedipalpal coxa 3 (4 on one coxa), 13 + 3 marginal microsetae, II 4 + 6–9 serrated coxal spines, III 6 + 3–6 coxal spines, IV 6; intercoxal tubercle bisetose. Genital opening broadly V-shaped, bordered by 5–9 setae; genital operculum with (8–)10 setae, sternal setae: 7–8 (female) or 8–9 (male) (+ 3 microchaetae on each stigma): 6–7 (+ 2 x 1–3): 6–7:6:6:6:6:4:0. Cheliceral palm (Fig. **2)** with 6 + 1 setae, fixed finger with 7–10 (two distal ones larger), movable finger with 4–7 teeth and one isolated subdistal tooth: spinneret of both sexes small and tubercle-like; serrula exterior with about 16 blades; flagellum typical, with 11 setae.

Pedipalps (Fig. 3): fixed chelal finger with 15–19 triangular teeth and some tiny rudiments basally, movable finger with 11–11 triangular (halfway between *sb/st*) + 6–10 rounded teeth (at level of *sb)* + some tiny rudimentary ones: a rounded hump distad of *iblisb,* trichobothria see fig. 3, isr level with *esb*, *sb* nearer *b* than *st.* Femur 6.8–7.1 (rnale) (6.6–6.9: female) times longer than broad and 2.29–2.38 times longer than patella, patella 2.0–2.4 (2.5–2.6) times, hand of chela 2.6–2.9 (2.5–2.6) times, chela 7.0–7.2 (6.4–6.8) times longer than broad, finger 1.5–1.6 times longer than hand. Leg 1: femur 6.6–7.1 times longer than deep and 2.0–2.2 times longer than patella, patella 3.2–3.4 times, tibia 4.4–5.1 times, tarsus 11.3–13.4 times longer than deep and 2.1–2.2 times longer than tibia. Leg IV: femur + patella 3.1–3.6 times, tibia



FIGS 1–3

Chthonius (E.)gracilimanus n. sp., holotype; 1: dentate epistome of carapace; **2:** chelicera; **3:** pedipalps; **5** ? = sensillum ?; scale unit 0.1 mrn.

5.8–6.3 times, basitarsus 3.8–4.2 times, telotarsus 12.2–13.9 times longer than deep and 1.9–2.2 times longer than basitarsus.

Measurements (4 ♂ 4 ♀) (in mm): Carapace 0.38–0.40/0.33–0.37 (female: 0.40–0.45/0.38–0.40). Pedipalps: femur 0.57–0.58/0.08 (0.61–0.65/0.09), patella 0.25/0.10–0.12 (0.26–0.27/0.10–0.11), hand 0.31–0.32/0.11–0.12 (0.32–0.35/0.13–0.14), finger length 0.47–0.50 (0.51–0.53), chelal length 0.77–0.81 (0.82–0.85). Leg 1: femur 0.36–0.37/0.05–0.06 (0.38–0.41/0.06), patella 0.17–0.18/0.05 (0.18–0.19/0.05–0.06), tibia 0.19–0.20/0.04 (0.20–0.22/0.04–0.05), tarsus 0.40–0.43/0.03–0.04 (0.44–0.46/0.04). Leg **IV:** femur + patella 0.54–0.55/0.15–0.18 (0.57–0.60/0.16–0.18), tibia 0.38-0.41/0.06–0.07 (0.41–0.44/0.07), basitarsus 0.19–0.21/0.05 (0.21–0.24/0.05–0.06), telotarsus 0.39–0.43/0.03 (0.43–0.44/0.03).

The new species belongs to the *machadoi*-group, characterized by the dentition of the movable palpal finger, the presence of a distinct dorsal hump distad of *iblisb* and by the presence **of** an isolated subdistal tooth on the movable cheliceral finger. It

is distinguished from *rimícola* Mahnert and ***dubius*** Mahnert by the position of trichobothrium *ist* (distad of ***esb)*** and from *machadoi canariensis* Beier by the strongly reduced eyes. It differs from *setosus* Mahnert by the smaller number of microsetae on carapace, more slender palpal chela, and its smaller size.

Identification key *to* the species of *Chthonius (Ephippiochthonius)* recorded from the Canary Islands

1	Movable cheliceral finger without isolated subdistal tooth ..... *tetrachelatus* (Preyssler)
1*	Movable cheliceral finger with isolated subdistal tooth 2
2	Trichobothria *eb–esb–ist* placed in a straight line, *ist* clearly distad of *esb* ...3
2''	Trichobothria *eb–esb–ist* not in straight line, *ist* level with ***esb*** 4
3	Posterior margin of carapace with **4** setae, epistome reduced, length of setae normal ..... *rimicola* Mahnert
3''	Posterior margin of carapace with 2 setae; epistome prominent, rounded and dentate; setae of carapace (particularly those of ocular and subbasal row) shortened ..... *dubius* Mahnert
4	Anterior eyes well developed, with rounded lense; pedipalps stout, hand 2.0 times and chela 5.3 times as long as deep; 9–10 pointed teeth on movable finger up to level of *st* .....*machadoi canariensis* Beier
4*	Anterior eyes reduced, pedipalps slender, hand at least 2.3 times and chela 6.0 times as long as deep; at least 12 pointed teeth reachinp well beyond *st* (nearly halfway between *st* and *sb)* 5
5	Carapace with 1–2 preocular microsetae, chela slender (female ratio 6.4–6.8); anterior eye-spots present; smaller (length of chela about 0.8 mm); setae of carapace short (0.10 mm) .....*gracilimanus* n. sp.
5''	Carapace with about 15 microsetae (preocular ones and ocular row), chela less slender, chela ratio (female) 6.0 times; larger (length of chela 1.0 mm); setae of carapace longer (0.15 mm) ..... *setosus* Mahnert

Lagynochthonius curvidigitatus n. sp. Figs 4–9

Material studied: Tenerife. Icod de los Vinos. Cueva Felipe Reventón (F7.V), Ig. L. Sala, 9.V.1994: 1 ♂ (holotype) (DZUL).

Description: General colour whitish-yellow. Carapace (Fig. 4) 1.2 longer than broad, not constrictrd posteriorly; epistome broad triangular and very short; eyeless; 16 macrosetae (4:4:4:2:2) and one preocular microseta on each side (length of central anterior macroseta 0.10 mm). Tergal setae: 3:4:4:7:6:7:7:7:7:7:4:6 (2 submedian tactile setae). Manducatory process with 2 setae, coxal setae: pedipalpal coxa **3,** 1**3,** 11 3 + 8 serrated coxal spines (in one row), III 6, IV ***5;*** intercoxal tubercle absent. Genital opening broadly V-shaped, bordered by 10 setae; genital operculum 10 setae, stemal setae: 8 (+ 2 microchaetae on each stigma): 7 (+ 2 x 3): 10:9:9:9:9:8 (2 tactile setae): 0. Cheliceral palm **(Fig.** 5) with 5 setae; fixed finger with 7, movable finger

with 8–9 teeth; spinneret absent; serrula interior with 14, s. exterior with 18 blades; flagellum typical.

Pedipalps (Figs 6–8): hand without lengthened spine-like seta, both fingers strongly curved, fixed finger with 30, movable finger with 33 curved and basally slightly shorter teeth of nearly equal length; basal apodeme of movable finger reinforced; no transparent tubercle (sensorium) on tip of fixed finger; trichobothria see fig. 8, *isr* clearly distad of *esb*, *sb* halfway between *b* and *st*. Femur 5.5 times longer than broad and 2.23 times longer than patella, patella 2.7 times, 2.4 times, chela 6.7 times longer than broad, finger 1.9 times longer than hand.

Leg 1: femur 6.6 times longer than broad and 1.8 times longer than patella, patella 3.8 times, tibia 4.7 times, tarsus 10.7 times longer than deep and **2.1** times longer than tibia. Leg IV (Fig. 9): femur + patella 3.3 times, tibia 6.5 times, basitarsus 3.5 times, telotarsus 11.4 times longer than deep and 2.4 times longer than basitarsus.

Measurements (in mm): Carapace 0.43/0.36. Pedipalps: femur 0.65/0.12, patella 0.29/0.11, hand 0.33/0.12, finger length 0.63, chelal length 0.95. Leg 1: femur 0.39/0.06, patella 0.21/0.06, tibia 0.20/0.04, tarsus 0.42/0.04. Leg IV: femur + patella 0.53/0.16, tibia 0.41/0.06, basitarsus 0.17/0.05, telotarsus 0.41/0.04.

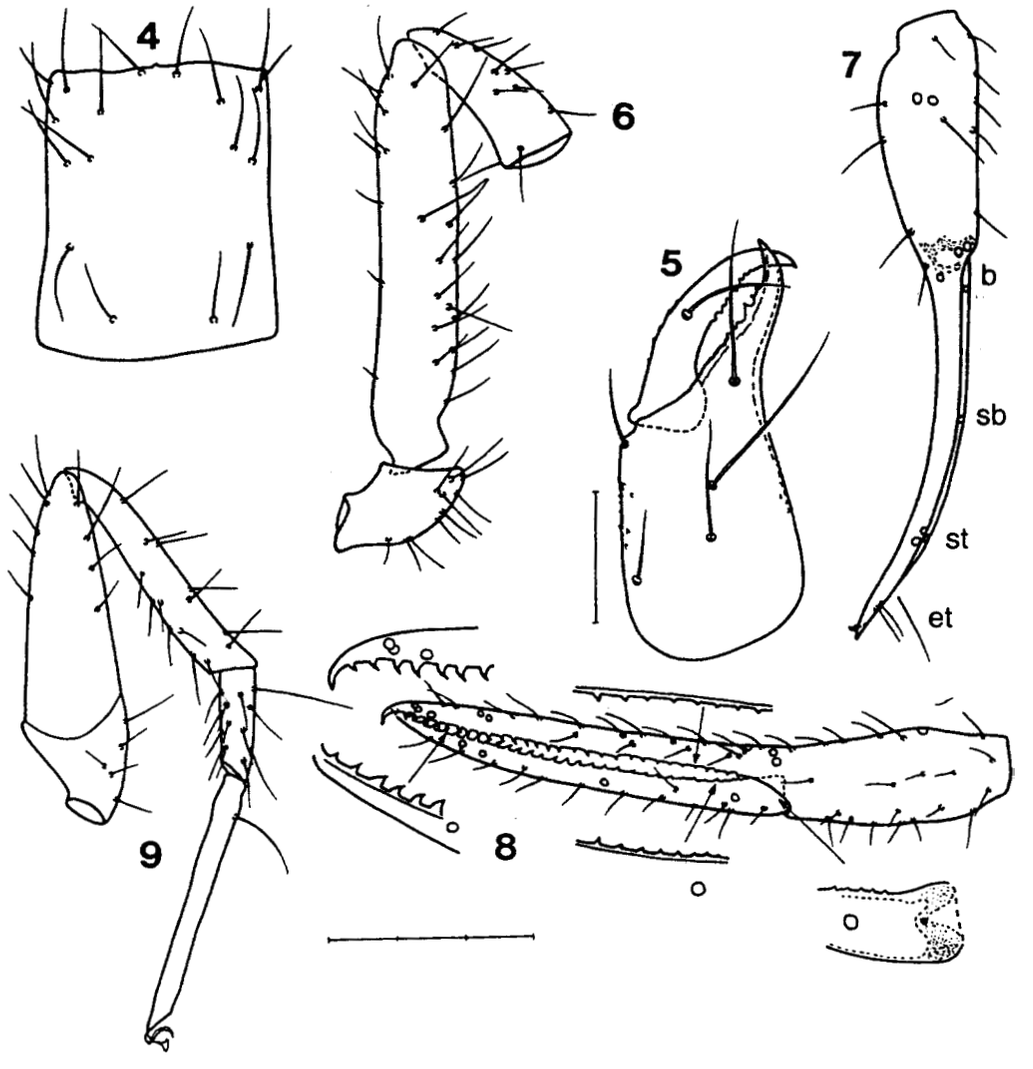
This surprising species is placed in the *Lagynochthonius* Chamberlin because of the sclerotized basal apodeme of the movable palpal finger, despite the untypical palpal hand (not evidently "flask-like"), absence of a rounded, hyaline projection on the tip of fixed palpal finger and some other characters emphasized by MUCHMORE (1991). Species of this genus are recorded mainly from tropical Asia and Australia; some are known from northern South America, Jamaica and Africa. Only three species have been collected in caves: *guasirih* (Mahnert) from Sireh Cave (Sarawak), *mordor* Harvey from Tier Cave (Australia) and *cavicolus* (= *cavicola*) Muchmore from Cousins Cove Cave no. 2 (Jamaica). The new species clearly differs from all known species of this genus (as well as those of the genus *Tyrannochthonius*) by the shape of palpal hand, the strongly curved palpal fingers and its morphometric characters.

Lagynochthonius curvidigitatus n. **sp.** has been collected in Cueva Felipe Reventón, which is also the type locality for two other highly adapted cave-dwelling chthoniid species, *Paraliochthonius tenebrarum* Mahnert and *Tyrannochthonius superstes* Mahnert. MUCHMORE (1991) recorded co-existence of *Lagynochthonius cavicola* and *Tyrannochthonius hoffi* Muchmore in Cousins Cove Cave (Jamaica).

Tyrannochthonius setiger n. sp. Figs 10–13

Material studied: Tenerife, Icod de los Vinos, Cueva del Sobrado (S–15–C), Ig. L. Sala, **IV.1994:** 1 ♀ (holotype, DZUL), 2 ♀ (paratypes, MHNG); lg. P. Oromí, 16.1V.1992: 1 ♀ (paratype, DZUL).

Description: General colour yellowish. Carapace (Fig. 10) 1.1 longer than broad, slightly constricted posteriorly; epistome triangular and prominent; eyeless; 16 macrosetae (4:4:4:2:2) plus one preocular microseta on each side (lenpth of central anterior macroseta 0.16 mm); laterally reticulate. Tergal setae: (3–)4:4:4:5–



FIGS 4-9

Lagynochthonius curvidigitatus n. sp.. holotype: **4:** carapace; **5:** chelicera: 6–8: pedipalps; 9: leg IV; scale unit **0.1** mm.

6:6–7:7–8:7–8:8:7–8:4:4–6 (2 submedian tactile setae). Manducatory process with 2 setae, coxal setae: pedipalpal coxa 3, I 3, II 3 + 8–10 serrated coxal spines (in one row) (Fig. 12), III 4–5, IV 5; intercoxal tubercle absent. Genital operculum 10–11 setae, sternal setae: 8 (+ 3 microchaetae on each stigma): 9–10 (+ 2 x 3) : 11–13 + 2 medial discal setae: 11:11:11–12:11:9 (2 tactile setae): 0. Cheliceral palm (Fig. 11) with 6 setae (in one case 7 on the left chelicera), fixed finger with 5 (distalmost enlarged) and movable finger with about 11 small teeth; spinneret absent; serrula interior with 18, s. exterior with 28 blades; flagellum typical (8 setae).

Pedipalps (Fig. 13): hand without elongate spine-like setae; fixed finger with 44-49, movable finger with unmodified base and 45-47 teeth of nearly equal length; sensillum between *sb* and *st*; trichobothria see Fig. 13, *ist* slightly distad of *esb*, *sb* slightly nearer *st* than *b*, which is displaced distally; femur 6.2–7.0 times longer than broad and 2.26–2.36 times longer than patelia, patella 2.4–2.5 times, hand 2.0–2.2 times, chela 7.0–7.7 times longer than broad, finger 2.3–2.6 times longer than hand.

Leg 1: femur 6.7–7.6 times longer than deep and 1.6–1.7 times longer than patella, patella 5.1–5.5 times, tibia 5.8–6.7 times, tarsus 12.9–14.4 times longer than deep and 1.8–1.9 times longer than tibia. Leg IV: femur + patella 3.8–4.1 times, tibia 7.7–8.5 times, basitarsus 3.6–4.1 times, telotarsus 14.4–15.0 times longer than deep and 2.3–2.6 times longer than basitarsus, both with a basal tactile seta.

Measurements (in mm): Carapace 0.72/0.63–0.68. Pedipalps: femur 1.24–1.31/ 0.19–0.20, patella 0.53–0.58/0.22–0.24, hand 0.57–0.63/0.26–0.29, finger length 1.41–1.49, chelal length 1.98–2.08. Leg 1: femur 0.72–0.75/0.10–0.11, patella 0.43–0.46/0.08–0.09, tibia 0.42–0.46/0.07, tarsus 0.80–0.84/0.06. Leg IV: femur + patella 1.05–1.10/0.27–0.28, tibia 0.82–0.90/0.10–0.11, basitarsus 0.30–0.36/0.08–0.10, telotarsus 0.79–0.85/0.05–0.06.

This species, the second of the genus *Tyrannochthonius* recorded in caves of Tenerife, is clearly related to *superstes* Mahnert (Cueva Felipe Reventón) (similar trichobothrial pattern, dentition of chelal fingers, chaetotaxy of carapace), but differs from it by its slightly smaller size, less elongate pedipalps (particularly chelal hand: 2.0–2.2 times versus 2.8 times and chela: 7.0–7.7 times versus 10.3–10.6 times), 6–7 setae on cheliceral hand (instead of 5), and by the presence of an enlarged distal tooth on the fixed cheliceral finger. The coexistence of these species in the Cueva del Sobrado is quite surprising.

An (unnamed) *Tyrannochthonius* species is mentioned by HEURTAULT (1994) in the "Grotte de los Ninos" (Mers-el-Kébir, Algeria, lg. R. Jeannel, 2.VI.1912, Biospeologica no. 522, MNHN). Affinities with *Tyrannochthonius psoglavi* Curcic from a Serbian cave (CURCIC 1990) are unclear.

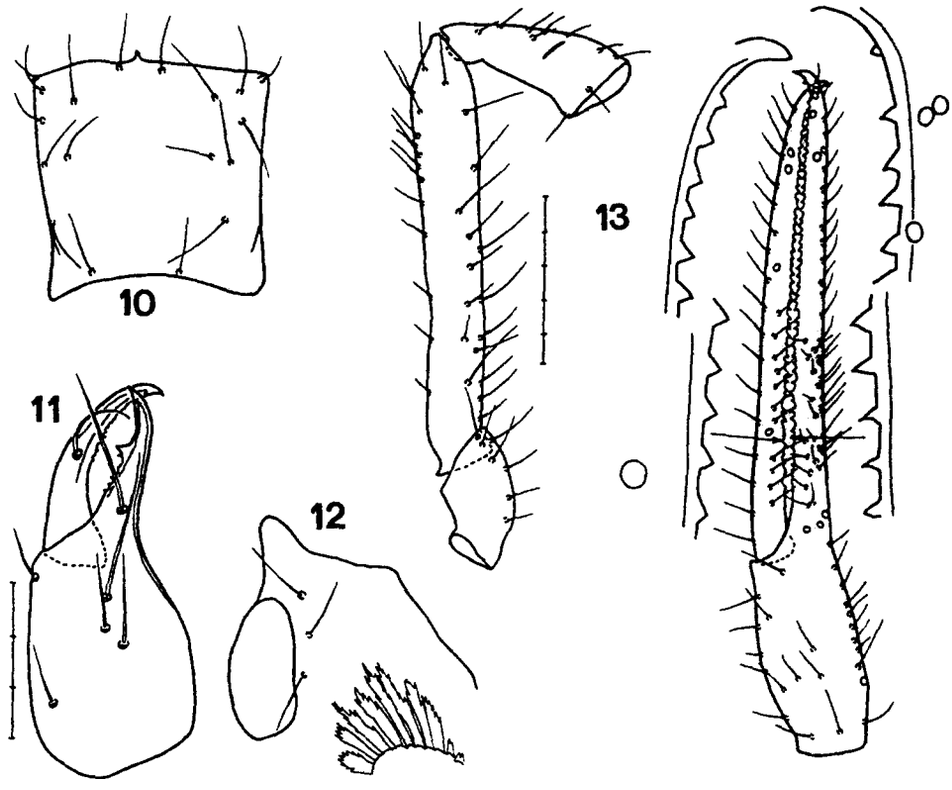
Tyrannochthonius superstes Mahnert

Material studied: Tenerife. **Icod de los Vinos, Cueva del Sobrado, lg. P. Oromí, 16.XII.1993:** 1 ♂ **(MHNG).**

This male agrees in all morphological and morphometric details with specirnens frorn the Cueva Felipe Reventón, except for the exceptional presence of six setae on the left cheliceral palm.

Paraliochthonius tenebrarum Mahnert

This species was described from Cuevas Negras (Las Cañadas) and has since been collected in two other caves in Tenerife: Cueva de los Roques, Las Cañadas, lg. N. Zurita (22FM/Ps 192) and Cueva Felipe Reventón, Icod de los Vinos, lg. L. Sala (Lab. 4–c), V. 1994.



FIGS 10–13

Tyrannochthonius setiger n. sp. holotype; 10: carapace; 11: coxa II; 13: pedipalps; scale unit 0.1 mm.

Microcreagrina hispanica (Ellingsen)

Microcreagrina gomerae Mahnert, 1993: 980, **nov. syn.**

Material studied: Gomera, Llanos de Crispin, lg. P. Oromí, 29.IV.1995: 2 ♂; Gornera, Juel. in humus, lg. P. Oromí. 1.V.1995: 2 ♂ 1 ♀; Gomera. **Parque** Nacional Garajonay, 1.5 km south of Mirador de Vallehermoso, 990 m, soil sample in laurel forest. lg. B. Hauser, 2.V.1993: 1 ♂; Tenerife, Las Mercedes. laurel forest. 700 m, lg. E. Heiss, 29.III.1983: 1 ♂.

The morphological and morphometric charactrrs of thrse additional specimens. mainly from La Gomera, clearly close the gap between the diagnostic characters of *hispanica* and *gomerae* emphasized in the original description of *gomerae* (MAHNERT 1993): palpal femur 3.07–3.54 times longer than broad (length 0.39–0.49 mm), patella 2.05–2.20 times, hand with pedicel 1.29–1.44 times, hand 0.96–1.15 times longer than finger, chela with pedicel 2.44–2.87 times; number of teeth on fixed finger 36-44, on movable finger 37-46. Leg I: femur 2.21–2.37 times, patella 1.66–2.26 times, tibia 2.96–4.26 times, basitarsus 1.86–2.03 times, telotarsus

3.56–4.41 times longer than deep. Leg IV: femur 2.52–2.75 times, tibia 3.76–4.81 times, basitarsus 1.60–1.91 times, telotarsus 3.73–4,25 times longer than deep.

No single specirnen was fully concordant with the holotype of *gomerae,* íntermediates in most of the characters were evident. Without hesitation, *Microcreagris gornerae* is therefore considered to be a junior subjective synonym of *M. hispanica* (Ellingsen), its holotype, from the MSS (superficial subterranean milieu) apparently presents extreme values of variable characters.

Microcreagrina subterranea Mahnert

Material studied: Tenerife, Las Cañadas, Cueva de los Roques, lg. P. Oromí, 8.XII. 1996: 1 ♀ (22C/12643).

Microcreagrina caeca caeca (Simon)

Material studied: Tenerife, Barranco Las Canteras, under bark in laurel forest, Ig. M. Báez, IV.1994: 1 ♀; Hierro, Valverde, ravine below the village, 500 m, sieving under opuntias, lp. CI. Besuchet, 7.111.1983: 1 tntonymph.

New to the Canary Islands. Further studies might be necessary to confirm the validity of the subspecies *madeirensis* Beier, described from Madeira, since one female from the island of São Miguel (Azores, type locality) (Ponta Delgada, Furna do Carvao (= lava tube), don. J. Lips, 27.VII. 1994) possesses slightly shorter fingers (equal to hand length with pedicel, but still longer than hand without pedicel).

Olpium pallipes (H. Lucas)

BEIER (1975) mentioned this widespread species from Tenerife; 1 have studied supplementary specimens from Alegranza (Llano de la Atalaya, lg. P. Oromí, 27.1V.1994; Caldera, lg. P. Oromí, 4.V.1990), Fuerteventura (Valle del Ciervo, Ig. P. Oromí, 17.II.1995; La Oliva, lg. P. Oromí, 25.II.1990), La Gornera (Fortaleza de Chipude, lg. P. Oromí, 14.111.1989). Gran Canaria (San Bartolorné, lg. E. Heiss, IV.1986), Lanzarote, Playa Blanca (lg. E. Heiss, 29.1X.1990) and Tenerife (Puertito de Güirnar: El Abrigo, Bco. Ciguena: lg. J. Murphy, 111.1996).

One male from La Gomera (Puntallana, lg. M. Arechavaleta, 2.V.1995) possesses more slender pedipalps (fernur 4.0 times longer than broad); its identity with *pallipes* is questionable.

Olpium canariense Beier

The species is newly recorded from the following islands: Alegranza (Caldera; Llano de la Atalaya; La Desgraciada), Graciosa (Mte Mojón), Lanzarote (Mirador del Rio) et Roque del Este: all specirnens collected by P. Oromí.

Calocheirus canariensis (Beier)

This species is recorded for the first time from Graciosa (Mte Mojón; lg. P. Ororní, 24.II.1995).

Halominniza oromii n. sp. Figs 14–15

Material studied: Island of Alegranza (N. Lanzarote), El Callaíto, lg. P. Oromí, 7.V.1990: 1 ♀ (holotype: DZUL).

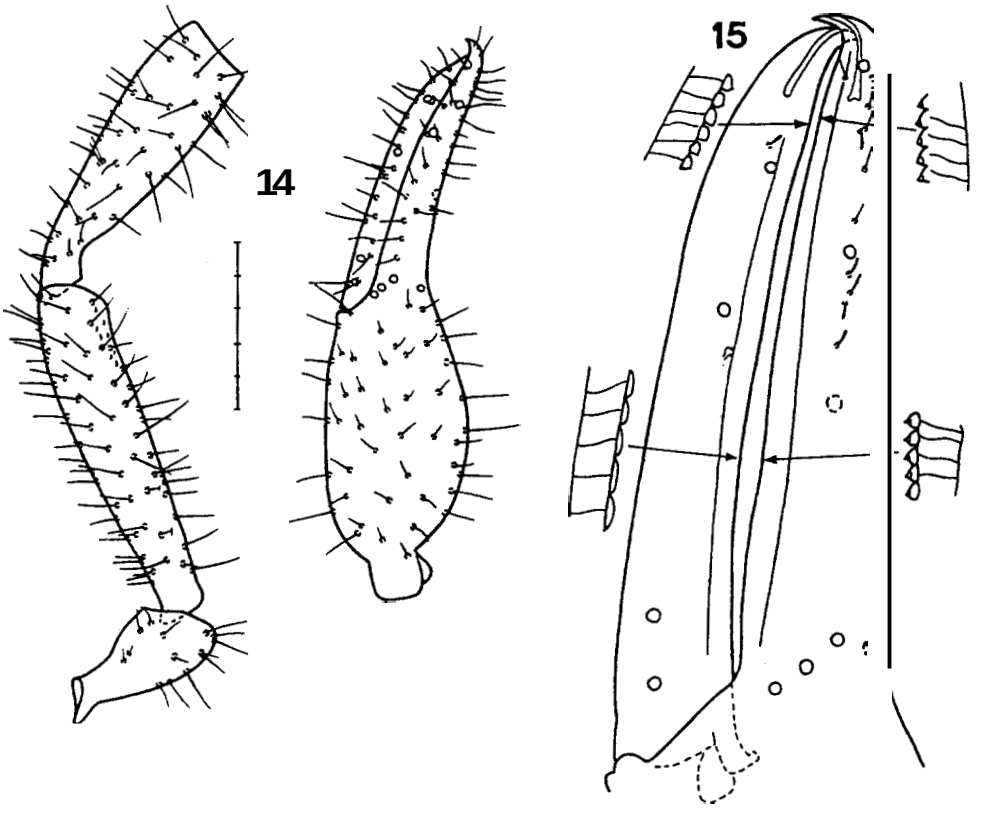
Description: Pedipalps and legs brownish-yellow, palpal chela slightly darker, greenish-olive; carapace and most tergites brown; carapace (sclerotized part) 1.5 times longer than broad. desclerotized at posterior border, smooth, median transverse furrow visible only laterally, subbasal transverse furrow reticulate; 4 eyes, anterior pair strongly rounded, one diameter from anterior border, posterior eyes somewhat flattened; 33 setae (6:8:8:6:5 (left lateral seta doubled, lateral setae short)). Tergites undivided, tergal setae: I 2, II 4, III–IX 6, X 7 (4 tactile setae), XI 9 (4 tactile setae), setae smooth, anal cone 2 + 2 setae; manducatory lobe with 3 marginal and 2 discal setae, pedipalpal coxa smooth, 13–14 setae, I 7–8, II 8–10. III 10–11, IV 16–17: genital operculum 7 setae; tracheal tubes normal, not enlarged. Cheliceral palm 5 setae, fixed finger with 5 teeth, movable finger with subapical tooth-like lobe, galeal seta *gs* short and curved; galea probably with 3 apical rami, serrula exterior 22 blades, flagellum 3 setae.

Pedipalps (Fig. 14) slender, trochanter 2.1 times longer than broad, with indistinct dorsal hiimp, femur without dorsal tactile seta, in distal **part** indistinctly granulate, 5.1 times, patella smooth, 3.5 times (club 2.7 times) as long as broad, hand smooth, with pedicel 2.1 times longer than broad and as long as finger, chela with pedicel 3.9 times, without pedicel 3.6 times longer than broad; fixed finger with 59, movable finger with 46 teeth (basal ones flattened and rounded). Trichobothria see Fig. 15, distal trichobothrial setae shortened, *st* nearer *t* than *sb*, *ist* clearly proximal to *st*; venom ducts short; a series of sensory setae in distal part of fixed finger, double-pored sensillum near *st*.

Leg I: feinur 3.6 times longer than deep and 1.7 times longer than patella, which is 2.1 times longer thnn deep, tibia 5.6 times, basitarsus 3.5 times longer than deep and 1.14 tinies longer than telotarsus, which is 3.6 times longer than deep. Leg IV: femur + patella with S dorsal setae, 3.7 tinies, tibia 6.2 times (setae TS + 4:3:3 pairs), basitarsus with basal tactile seta, 3.7 tinies longer than deep and 1.12 times longer than telotarsus, which is 4.0 times longer than deep. Arolia undivided, clearly longer than smooth clans.

Measurements (mm): Carapace 0.91/0.61. Palps: femur 1.05/0.21, patella 0.91/0.26, hand with pedicel 0.86/0.42, pedicel 0.11, finger length 0.85, chela length with pedicel 1.63. Leg 1: femur 0.44/0.12, patella 0.25/0.12, tibia 0.44/0.08, bacitarsus 0.22/0.06, telotarsiis 0.19/0.05. Leg IV: femur + patella 0.90/0.24, tibia 0.71/0.11, basitarsus 0.31/0.08, telotarsus 0.28/0.07.

Two species were known in this genus, from coastal regions of Israel. Jordan (*aegyptiacum litorale* Beier). Egypt (*aegyptiacum*) and Moucha Island/F.T.A.I. (*parentorum* Mahnert). The new species differs from *aegyptiacum*, morphologically the most similar species, in trichobothrial pattern (in *oromii st* is clearly nearer *t* than *sb*; *ist* clearly proximal to *si*, group *est–ir–er* nearer to finger tip) and the (indistinctly) granulate palpal feinur. The new species is placed in *Halominniza* due to its long



FIGS 14–15

Halominniza oromii n. sp., holotype; **14:** pedipalps; **15:** chelal fingers, lateral **view;** scale unit 0.1 mm.

femur of leg 1 and the presence of two transverse furrows on the carapace, but possible affinities between *Halominniza* and some species placed actually in *Olpium* (*tenue* Chamberlin, *canariense* Beier) should be reassessed; *orornii* is clearly distinguished from *canariense* by its larger size and more slender pedipalps.

Geogarypus canariensis Beier

First record for Roque del Este (lg. P. Oromí, 7.V.1993: 1 ♀)

Geogarypus minor (L. Koch)

This widespread Mediterranean species had not previously been recorded from the archipelago. Pedro Oromí collected **2** ♂ 1 ♀ on Gran Canaria (Bco. Oscuro, 8.I.1988).

Apocheiridium ferum (Simon)

One tritonymph of this genus collected on Hierro, above Frontera (road to Valverde), in a soil sample in laurel forest ("Laurisilva", 1130 m (lg. B. Hauser, 5.V.1994) is tentatively attributed to *ferum*. This genus has not previously been recorded from the archipelago. The specific identity needs to be confirmed with adult specimens.

Pachychelifer (?) sp. Figs 16–17

Material studied: **El** Hierro, "El Pinar" above Las Casas, 1180 m. ***Pinus canariensis*** forest, **lg.** Ch. Lienhard, 5.V.1993: 1 ♀.

Unidentifiable as a female, but it cannot be placed in any cheliferid genus hitherto recorded from the archipelago: tergites with **5** setae on posterior margin and one lateral discal seta on IV–X, **XI** with 2 tactile setae; cheliceral palm with **4** smooth setae, galea with 6 apical rami; flagellum **3** setae; median cribrate plate band-shaped (Fig. **17);** pedipalps stout, finely granulate, without coarser granules; femur not abruptly enlarged, 2.8 times (0.74 mm/0.26 mm), patella 2.1 times (0.69/0.32), hand with pedicel 1.9 times (0.79/0.43) longer than broad and 1.5 times longer than finger, finger length 0.53; chela with pedicel 3.0, without pedicel 2.8 times. length with pedicel 1.25; fixed finger with 23. movable finger with **24** broad, pointed teeth, trichobothria see Fig. 16; tarsus of leg IV without tactile seta, subterminal seta smooth, claws simple and smooth.

It is tentatively placed in this monotypic genus (known from the Black Sea border only). Males are necessary to determine its generic and specific identity.

Rhacochelifer hoggarensis Vachon, **nov. stat.** Figs 18–22

Rhacochelifer maculatus hoggarensis Vachon, 1910: *157–1*59, figs 1–3 (Hoggar, massif de l'Atakor, In Ameri, 2320 m): HEURTAULT 1970: 698; HARVEY 1991: 538.

Material studied : Hierro, Riso de los Hermanos. lg. P. Oromí, 25.III.1987 (8208 M/C): *2* ♂ 1 ♀; El Pinar, above Las Casas, 1100 m, sieving a rotten stump of *Pinus*, lg. Cl. Besuchet, 5.III.1983: 1 ♂.

Complementary description: Carapace granulate, without coarser granules; hind corners with tiny knob-like enlargernents. with a seta at their base; tergites divided, scaly, lateral hind corners of tergite 1 with tiny knob-like enlargements; 5–6 setae at posterior border of half tergites. onr lateral and medial discal seta **(IV–X).** on VIII–X a supplementary discal seta may be present; XI 7–8 (2 tactile setae, 2 median discai setae). Half-sternites normally with **4-5** setae at posterior border, XI 6 (2 tactile setae); coxa IV of male with atrium and short coxal sac (about half of coxal length); genital operculum with about 36-48 long setae (the central ones dentate) in rnale and 16 (8–8) setae in female, male genital apodeme similar to that figured by VACHON (1940, *fig.* 1) and that of *tibestiensis* (HEURTAULT 1971, **fig.** 17), two pairs of smooth interior setae of male genital opening; median unpaired cribrate plate of femaie mushroom-shaped (Fig. 22); cheliceral palm (Fig. **18)** with 5 mostly smooth setae,

galea of male short. with 3–4 apical teeth, that of female with 6 apical rami; serrula exterior 18–20 blades, flagellum 3 blades.

Pedipalps (Figs 20–21) granulate, femur and patella with coarser granules on inner surface, trochanter with prominent rounded dorsal hump, finger slightly gaping, fixed finger with 36–38 (female 41), movable finger with 36–41 (female 44) teeth of normal shape; femur 3.7-4.0 times, patella 2.8–3.1 times, club 2.08–2.31 times as long as broad, hand with pedicel2.2–2.5 times longer than broad and 1.5 times longer than finger, finger about 1.4 times longer than hand width, chela with pedicel 3.5–3.8 times, without pedicel 3.2–3.6 times lonper than broad.

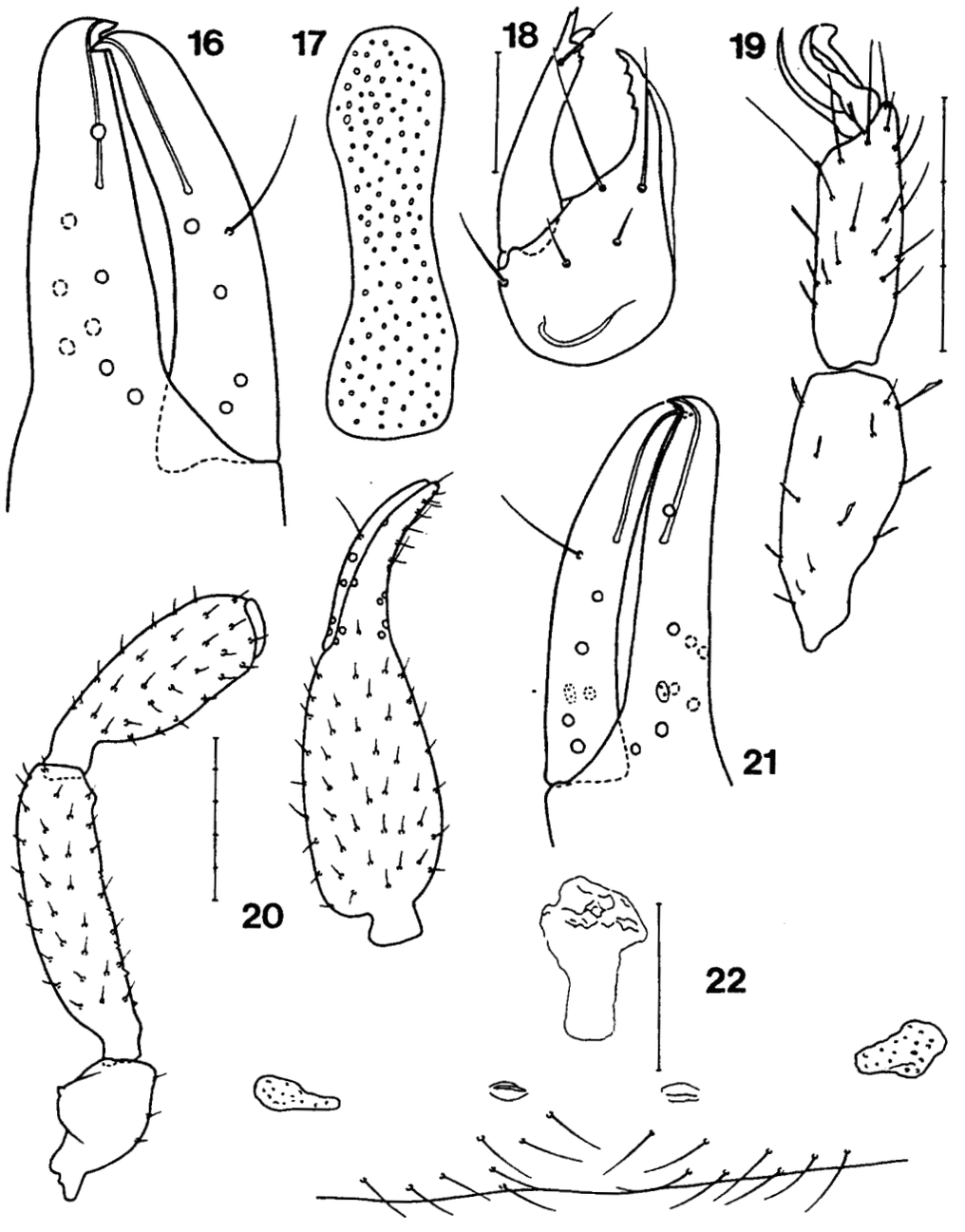
Leg 1 (Fig. 19): tarsus of male with outer apical comer slightly rounded, anterior border slightly concave, claws asymmetric, exterior one slender, upper border partly folded, interior one stouter, with one rounded tooth on lower border; femur 1.8–1.9 times, patella 2.6–3.1 times, tibia' 2.7–2.8 (male) and 3.8 (female) times, tarsus 3.0–3.4 (female 4.6) times longer than deep; leg IV: femur + patella 3.0–3.1 (female: 3.5) times, tibia 4.1-4.4 (4.6) times, tarsus 3.9–4.7 times lonper than deep, no tactile seta, subterminal setae dentate.

Measurements (3 ♂ 1 ♀) (in mm): Carapace 0.80–0.88/0.77–0.98. Pedipalps: femur 0.78–0.94/0.20–0.24 (female: 0.95/0.24), patella 0.70–0.79/0.23–0.28 (0.81/0.29), hand with pedicel 0.78–0.9210.32–0.42 (0.98/0.40), finger length 0.51–0.59 (0.65), chela length with pedicel 1.23–1.44 (1.55). Leg 1: femur 0.27–0.28/0.14–0.15, patella 0.32–0.40/0.12–0.13 (0.40/0.14), tibia 0.29–0.35/0.11–0.13 (0.36/0.10), tarsus 0.27–0.32/0.08–0.09 (0.34/0.07). Leg IV: femur 0.63–0.75/0.21–0.24 (0.79/0.22), tibia 0.49–0.56/0.11–0.13 (0.60/0.13), tarsus 0.34–0.39/0.08–0.09 (0.41/0.09).

Only the male holotype of this species was known, described by VACHON (1940) as a subspecies of *R. maculatus* (L. Koch). Distinctions at the subspecific level are questionable in pseudoscorpions, and the differences between *maculatus* and *hoggarensis* are sufficient to consider the latter as separate species. Attribution of these specimens to *hoggarensis* might be surprising, but 1 could not find sufficient differences to justify the description of a new species.

Only a few *Rhncochelifer* species of the *maculatus*-group (male tarsus 1 with rounded, not prominent anterior corner, coarser granules on palpal femur and patella) with such slender pedipalps (femur ratio at least 3.6 in male, patella ratio at least 2.8) are described in the central and western Mediterranean region and northern Africa: *andreinii* Beier (Libya). *chopardi* Vachon (Air. Niger), *hoggarensis* Vachon (Hoggar, Algeria). *tenuimanus* Heurtault (Tibesti), and *tibestiensis* Heurtault (Tibesti). These species had been differenciated by HEURTAULT (1971). *R. andreinii* was not included in her key, but this species (only male holotype known) is said to lack discal setae on tergites and also to lack tactile setae on tergite XI.

Rhacochelifer spiniger Mahnert (from Portugal) must be, at the actual level of knowledge, transferred to *Pseudorhacochelifer* **(nov. comb.),** since it possesses distinct spine-like lateral enlargements on carapace and anterior tergites.



FIGS 16–22

Pachychelifer (?) sp., chelal fingers, lateral view (16) and median cribrate plate (17); *Rhacochelifer hoggarensis* Vachon; 18: chelicera; 19: male fore tibia and tarsus; 20: pedipalps; 21: chelal fingers, lateral view; 22: female genital operculum with spermatheca and lateral cribrate plates; scale unit 0.1 mm.

Rhacochelifer gracilimanus Mahnert

Material studied: Gran Canaria. Inagua, lg. P. Oromí, 6.X.1996: **5** ♂ 5 ♀ (DZUL, MHNG).

Described from Tenerife, this species is now recorded from Gran Canaria. The length of the male palpal femur may vary from 1.02 mm to 1.20 mm, females are slightly larger (femur length up to 1.30 mm).

Rhacochelifer pinicola (Nonidez)

1 have no hesitations in attributing to this species one female from Hierro (above Tabaique, 1000 m, under bark of *Pinus canariensis*, lg. E. Heiss, 19.IV.1991) and one tritonymph from La Gomera (Parque Nacional Garajonay, road from Laguna Grande to Las Rosas, 1.5 km south of the "Mirador de Vallehermoso", 990 m, in laurel forest ("Laurisilva"), lg. Ch. Lienhard, 2.V.1993).

Pseudorhacochelifer schurmanni Beier

Two females from La Palma, Pico de la **Cruz,** 2300 m, (lg. P. Oromí, 12.VII. 1992) belong to this species, which was described from Tenerife.

Pseudorhacochelifer canariensis n. sp. Figs 23–26

Rhacochelifer cf. *spiniger*: MAHNERT 1980: 261 (Gran Canaria, Tejeda).

Material studied: Tenerife, Las Cañadas, Cañada Blanca, in the surroundings of Parador Nacional. rather dry habitat with *Spartocytisus supranubius* and *Descourainia bourgeauana*, hand collecting (6C/Ps *352).* Ig. N.Z.P., 7.VI.1995: 1 ♂ (holotype; DZUL), 1 ♂ (paratype; MHNG); Las Cañadas. La Fortaleza. pitfall trap. lg. N. Zurita. 6.X.1995 (26V2/Ps 4883): **2** ♀, hand collecting. lg. P. Oromí, 11.VI.1995 (26C/Ps 658): 1 ♀; pitfall trap, lg. N. Zurita, 11.VI.1995 (26V3/Ps 1917): 1 ♀, hand collecting. lg. A. Camacho, 7.VI.1995 (26FM/Ps 41):1 **0**. in litter of *Cistus osbaeckifolius*. lg. **A.** Camacho, 7.VI.1995 (26E/Ps 2711) 1 ♀ 1 protonymph: Las Cañadas. Risco Verde. hand collecting. lg. M.A.H., 3.VI. 1995 (24C/Ps *357)*: 1 **0**. window trap. lg. N. Zurita, 3.VI.1995 (24W/Ps 2410):1 *9:* window traps, lg. N.Z.P.. 3I.V.1995 (24W/Ps 10):2 ♀; Las Cañadas. west slope of Pico Viejo, 2100 m a.s.l., vepetation dorninatecl hy *Spartocytisus supranubius* and *Pterocephalus viscosus*. bottlc trap. Ig. A. Caniacho. 29.VI.1995 (7B4/Ps 2032): 1 /; in litter, lg. P. Oromí. 2S.V.1996: 1 / 1 P (7E/6598); south slope of Pico Viejo. 2000 m a.s.l.. substrate alluvial, spnrse vegetation dominated by *Spartocytisus supranubius* and *Adenocarpus viscosus*. lg. A. Camacho, 28.V.1996: 1 ♂ (4C/6392); in litter. lp. P. Oronií, 1S.V.1996: 1 ♀ 1 D (4E/6584) (all paratypes. DZUL and MHNG); Tenerife. Las Bodepas, 200–500. lg. **E.** Heiss, 31.III.1983: 3 ♂ 1 **0** tritonyniph (paratypes. MHNG). Gran Canaria. Tejeda, 1000 ni. lg. S. Vit. 30.XII.1977: 1♀ 1 protonymph (MAHNERT 1980) (paratypes: MHNG).

Description: Carapace granulate, with coarser granules; two well-developed eyes; two distinct, granulate, transverse furrows, subbasal one slightly nearer to posterior border than to median furrow; hind corners with short spine-like process; setae relatively short, clavate and dentate, **4** setae (and one preocular small seta on each side) on anterior border and normally 9–10 (8–14) setae on posterior border; tergites divided (XI scaly, iindivided or incompletely divided), granulate, lateral hind corners

of tergites I–VII (on last ones short) (one male I–IV, one I–VIII) with spine-like keels; tergal setae clavate, of equal length on all tergites, setae of XI only dentate; 4–6 setae at posterior border of half-tergites, one lateral, one medial and one discal seta on IV–X; XI 8–10 (2 tactile setae, 2 median discal setae). Manducatory process 3 marginal and one discal setae, palpal coxa scaly, about 10 setae (one tactile one), coxa I 6, II 6, III 10, IV about 29; coxa IV of male with atrium and short coxal sac (about half of coxal length); genital operculum with about 40 long setae (the central ones dentate: Fig. 26) in male and 12–23 setae in female, male genital apodeme normal, 7 (3/4) interior dentate setae behind male genital opening (holotype); median unpaired cribrate plate of female mushroom-shaped; sternal setae slender and smooth, only last ones finely dentate, half-sternites normally with 4 setae on posterior border, one suprastigmatal seta on IV, VIII–X with an additional lateral seta, XI with 7–8 setae (total number) (2 tactile setae). Cheliceral palm with 5 setae (*db* and *ib* short; smooth or finely dentate), galea of male short, with 3-4 apical teeth, that of female with 6 apical rami; serrula exterior 18 blades, flagellum 3 blades.

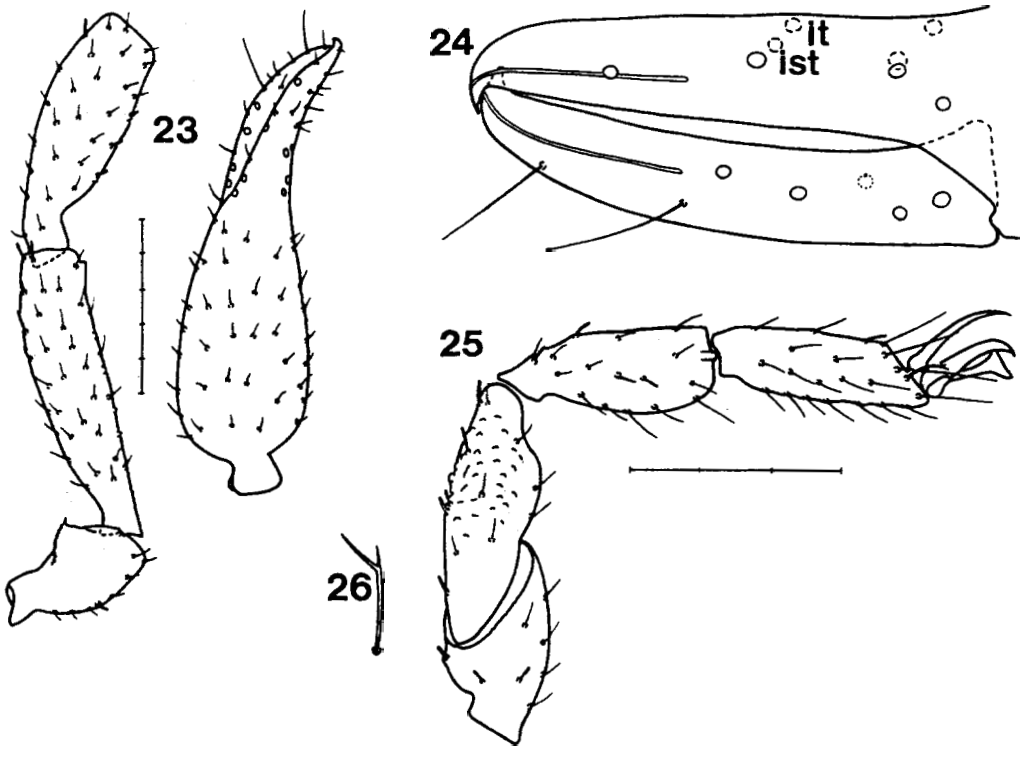
Pedipalps (Figs 23–24) slender, distinctly granulate, setae short and indistinctly clavate, femur and patella with coarser granules on inner surface, trochanter with prominent rounded dorsal hurnp, fingers slightly gaping, fixed finger with 38-44 (female 34-43), movable finger with 39-46 (fernale 40–44) teeth of normal shape; trichobothrial pattern see Fig. 24. Femur 3.9–4.4 (female 3.7–4.1) times, patella 3.0–3.3 (2.7–3.3) times, hand with pedicel 2.3–2.5 (2.1–2.3) times longer than broad and 1.4–1.6 times longer than finger, chela with pedicel 3.7–4.0 (3.3–3.6) times, without pedicel 3.4–3.7 (3.1–3.4) times longer than btoad.

Leg I (Fig. 25): tarsus of male nearly parallel-sided, with outer apical corner slightly rounded, anterior border straight, claws assymetric, exterior one slender; femur 1.7–2.0 times, patella 2.7–3.1 times. tibia 2.4–2.7 (fernale 3.4–3.9) times, tarsus 3.0–3.4 (female 4.6–5.0) times ionger than deep; leg IV: femur + patella 3.0–3.3 times, tibia 4.4–4.3 (4.3–4.7) times, tarsus 4.4–4.6 (4.1–5.1) times longer than deep, no tactile seta, subterminal setae dentate.

Measurements (5 0 4 ♀) (in mm): Carapace 0.82–0.85/0.88–0.94 (0.91–1.04/0.94–1.06). Pedipalps: femur 0.86–0.99/0.20–0.23 (female 0.90–1.04/0.23–0.28), patella 0.76–0.84/0.24–0.27 (0.83–0.88/0.27–0.33), hand with pedicel 0.85–0.91/0.35–0.37 (0.95–1.02/0.43–0.45), finger length 0.55–0.64 (0.61–0.68), chela length with pedicel 1.35–1.45 (1 SO–1.67). Leg I: femur 0.26–0.30/0.14–0.17, patella 0.33–0.38/0.12–0.13 (0.38–0.44/0.13–0.15), tibia 0.30–0.3310.12–O.13 (0.37–0.38/0.10–0.11). tarsus 0.30–0.31/0.09–0.10 (0.35–0.36/0.07–0.08). Leg IV: femur + patella 0.67–0.76/0.22–0.25 (0.78–0.85/0.24–0.28), tibia 0.50–0.55/0.12–0.13 (0.58–0.62/0.12–0.14), tarsus 0.39–0.42/0.09 (0.41–0.44/0.08–0.10).

This new species is closely related to *spiniger* (Mahnert). known from Portugal, but it differs from the latter by its larger size, slightly more slender pedipalps and slightly more slender leg I (tibia and tarsus). The male foretarsus is similar in shape, but has a straight anterior face (in *spiniger* there is a smooth concavity situated proximad of the middle of the anterior face). It is easily distinguished from *Pseudorhacochelifer*

schurmanni Beier in having coarser granules on palpal femur and patella and by its larger size.



FIGS 23–26

Pseudorhacochelifer canariensis **n. sp., holotype; 23: pedipalps; 24: chelal finger, lateral view; 25: leg I; 26: seta of genital operculurn; scale unit 0.1 mm.**

Artificial key to the species (adults only) of the genera ***Rhacochelifer*** and ***Pseiidorhacochelifer*** recorded from the Canary Islands

1 Pedipalpal femur and patella without coarser granules besides normal granulation 2

1" Pedipalpal femur and patella with coarser granules 4

2 Larger species (femur length at least 0.70 mm) with slender pedipalps (femur at least 3.6 times longer than broad), with or without discal setae ontergites 3

2* Small species (femur length about 0.60 rnm) with stout pedipalps (femur about 3 times longer than broad), no discal setae on tergites ..... *Rhacochelifer pinicola*

3 Large species (femur length more than 1.0 mm), chelal hand slender (2.6 times longer than broad); male without spine-like lateral prolon-

gations on carapace and anterior tergites, medial discal setae present on half-tergites ..... ***Rhacochelifer gracilimanus***

3* Smaller species (femur length 0.7–0.8 mm), hand less slender, 2.3–2.4 times longer than broad; male with spine-like lateral prolongations on carapace and anterior tergites, medial discal setae absent on half-tergites ..... ***Pseudorhacochelifer schiirnianni***

4 Pedipalps stout, femur at most 3.5 times, patella 2.5 times longer than broad, femur abruptly enlarged at base, femur Iength 0.69–0.89 mm ..... ***Rhacochelifer maculatus***

4* Pedipalps slender, femur at least 3.7 times, patella at least **2.8** times longer than broad, femur gently enlarged at base, femur length 0.87 mm 5

5 Discal setae on tergites IV–X normally absent; male without spine-like lateral projections on hind corners of carapace and tergites, internal seta of male genital opening smooth, male femur 3.7–4.0 times longer than broad ..... ***Rhacochelifer hoggarensis***

5* Discal setae on tergites IV–X present, male with spine-like lateral projections on hind corners of cephalothorax and tergites I–V present, internal setae of male genital opening dentate, male femur 4.1–4.3 times longer than broad ..... ***Pseudorhacochelifer canariensis***

BRIEF REMARK ON *Chelifer mayeti* Simon

This species was described from "Gafsa, Tunisia" and compared with ***Chelifer*** **(= *Rhacochelifer) peculiaris*** and ***maculatus***, but also with ***Chelifer*** **(= *Withius*) *piger*** and its synonym ***subruber*** (SIMON 1885). After examination of the type specimen, BEIER (1932) transferred it to ***Lophochernes,*** since he ascertained the presence of a tactile seta on tarsus IV and of smooth subterminal setae on the hind tarsi. This species is only known from the type specimen which could not be located in neither the Muséum national d'histoire naturelle Paris (J. Heurtault and M. Judson, in litt.) or in the Naturhistorisches Museum Vienna (J. Gruber, in litt.). It has not been recorded since the original description, and since the unique known specimen is a female, its generic (or even familial?) status cannot now be established with certainty.

Canarichelifer teneriffae Beier

This species is now also recorded from Roque del Este (Lanzarote) (lg. P. Oromí, 7.V. 1993).

Withius piger (Simon)

This cosmopolitan species is now also recorded from La Palma (Juan Adalid, Ig. P. Oromí, 15.1.1994).

Lamprochernes savignyi (Sirnon)

Material studied: Hierro, Las Playas, ravine south **of** the Parador, sieving **of** compost heaps in a garden, **lg. Cl**. Besuchet, 3.111.1983: 5 ♂ 11 ♀ 6 tritonymphs.

New to the Canary Islands. This cosmopolitan synanthropic species is frequently found in compost heaps. HARVEY (1991) summarized the known records; SCHAWALLER (1991, 1995) added localities from Nepal and China.

Dendrochernes cyrneus (L. Koch)

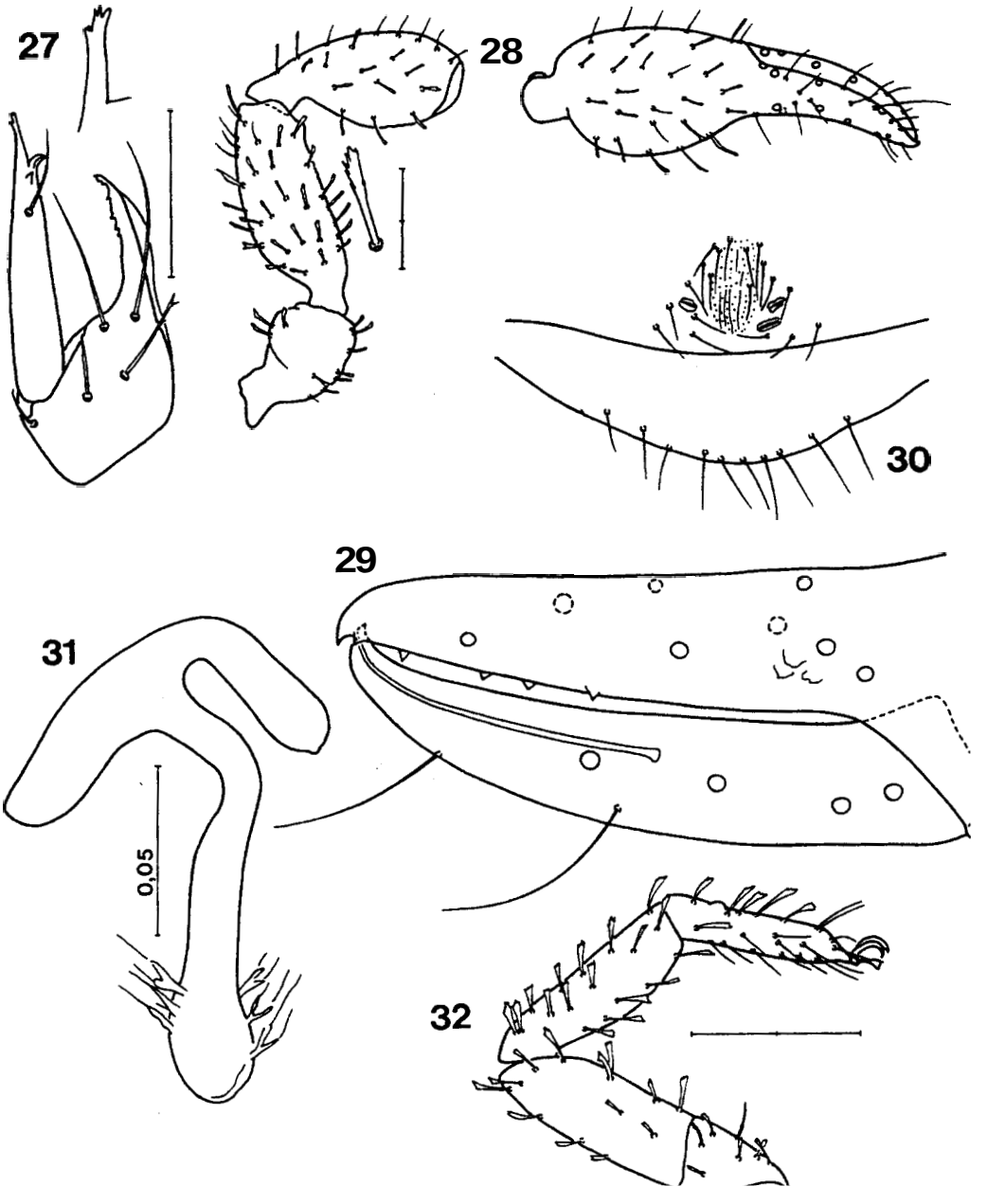
Recorded from Hierro and La Gomera (BEIER 1975). Three specimens of this species (1 ♂ 1 ♀ 1 tritonymph) have been coliected by M. Báez in April 1994 on Tenerife, La Esperanza, under bark of ***Piniis canariensis.*** I have also seen some more specimens from Hierro (Sabinosa; El Pinar, above Las Casas, 110 m; Amoco near Jarales, 900 m; above Tabaique, 1000 m, under bark of *Pinus canariensis*; Ig. Cl. Besuchet, E. Heiss and P. Oromí) and La Gomera (Juan Tomé, Llanos de Crispin, El Cedro; Ig. P. Oromí).

Allochernes longepilosus n. sp. Figs 27–32

Material studied: Tenerife, Roque de Caramujo, 2200 m, near Las Cañadas, in old trunks of *Adenocarpus* (?), Ig. CI. Besuchet, 13.111.1983: 1 ♀ **(holotype),** 1 ♂ 2 ♀ **4 tritonymphs (paratypes; MHNG).**

Description: Carapace coarsely granulate, with microsculpture between the round granules; eyes or eyespots lacking; two distinct, granulate, transverse furrows, subbasal one smoother than medial one; setae clavate and dentate, 6 setae on anterior border and normally 9–10 (plus **5-6** discal ones in metazone) setae on posterior border; tergites divided, granulate; tergal setae clavate, slightly longer on posterior tergites; 4–6 setae at posterior border of half-tergites, one lateral and one medial on (II) III–X; XI 8–9 (2 median discal setae). Manducatory process 3 marginal and one or two discal setae, palpal coxa granulate, about 17–19 clavate setae (one tactile one), coxa 19–12 (some smooth), II 11–15, III 14–17 (some smooth), **IV** 24–35 (some smooth); genital operculum of male with 17 setae (central ones longer) and 17–20 setae in female (Fig. 30), 4 (2/2) interior smooth setae at border of male genital opening; spermatheca of typical shape (Fig. 31); sternal setae smooth on anterior sternites, apically dentate/clavate and longer on posterior sternites, chaetotaxy of half-sternites: III 5–6 and 3 suprastigmatal setae, **IV 3-4** and 3 suprastigmatal setae; following ones with 6–8 posterior, one lateral and one medial anterior setae, XI 8–10 setae (total number) **(2** medial discal tactile setae, lateral ones longer, finely dentate). Cheliceral palm (Fig. 27) with 5 setae (*db* and *ib* short. finely dentate), subapical lobe on movable finger tooth-like; galea slender, with **4** apical teeth; serrula exterior 17–18 blades, flagellum 3 blades.

Pedipalps (Figs 28–29) stout, distinctly granulate, setae long, apically dentate, setae of hand long, internal ones apically slightly clavate, external ones shorter and dentate, trochanter with prominent rounded dorsal hump. fixed finger with 29 (male) to 31–33 (female), movable finger with 32 (female 33–39) teeth of normal shape; accessory teeth **on** fixed finger: 3–5 external and 2 internal ones, on movable finger 3–4 external and one internal ones; venom duct in movable finger long, nodus



FIGS 27–32

Allochernes longepilosus n. sp., holotype; 27: chelicera, with female galea enlarged; 28: pedipalps; 29: chelal fingers, lateral view; 30: female genital operculum; 31: spermatheca; 32: leg IV; scale unit 0.1 mm.

ramosus between *t* and *st*; trichobothrial pattern see Fig. 29. Femur abruptly enlarged, 2.6–2.7 times, patella 2.4–2.5 (club 1.6–1.7) times, hand with pedicel 1.7–1.9 times longer than broad and 1.1 (male) to 1.2 (female) times longer than finger, chela with pedicel 3.4 (male) (female 3.0–3.2) times, without pedicel 3.1 (2.8–3.0) times.

Leg 1: femur 1.4–1.5 times, patella 2.4–2.8 times longer than deep and 1.47–1.55 times longer than femur, tibia 3.1 (female: 3.3–3.8) times, tarsus 4.5–4.9 times longer than deep. Leg IV (Fig. 32): dorsal (lateral) setae apically dentate/ clavate, ventral (internal) ones apically dentate (femur, tibia) or smooth (tarsus), femur + patella 3.8–4.0 times, tibia 3.9–4.2 times, tarsus 4.3–4.8 times longer than broad, no tactile seta, subterminal seta smooth, claws simple, smooth, as long as arolia.

Measurements (1 ♂ 3 ♀) (in mm): Carapace 0.49/0.44 (0.55–0.58/0.47–0.50). Pedipalps: femur 0.41/0.15 (female 0.41–0.45/0.16–0.17), patella 0.40/0.17 (0.42–0.47/0.17–0.19), hand with pedicel 0.39/0.21 (0.42–0.46/0.23–0.27), finger length 0.36 (0.36–0.38), chela length with pedicel 0.72 (0.74-0.80). Leg 1: femur 0.13/0.09 (0. 1410.09–O.10), patella 0.20/0.08 (0.20–0.22/0.08–0.09), tibia 0.19/0.06 (0. 19–0.21/0.05–0.06), tarsus 0.21/0.04 (0.21–0.22/0.04–0.05). Leg IV: femur + patella 0.37/0.09 (0.39–0.41/0.10), tibia 0.27/0.07 (0.29–0.31/0.07), tarsus 0.23/0.05 (0.23–0.25/0.05).

The affinities of this species are uncertain. It is amongst the smallest species of this genus along with *pityusensis* Beier, *siciliensis* (Beier), *rhodius* Beier and *microti* Beier (from Turkey and Georgia), but it differs from all these species by the long, apically slightly clavate pedipalpal setae; it can also be distinguished from *pityuensis* by the higher number of tergal setae and longer palpal fingers, and from *microti* by the shape of palpal femur (smoothly enlarged). The species *rhodius* is characterized by much shorter pedipalpal setae, relatively longer palpal fingers, the reduced number of accessory teeth on palpal fingers and the distal position of it (close to *et*). *Allochernes siciliensis* possesses stouter palpal segments (particularly patella ratio 2.0–2.1), longer galeal branches and is smaller.

Curiously, this genus had not been recorded from this archipelago before, though the presence of some widespread species, such as *powelli* (Kew), *masi* (Navas) or even *wideri* (C.L. Koch), would not be surprising.

LIST OF PSEUDOSCORPION SPECIES RECORDED FROM THE CANARY ISLANDS

Chthonius (C.) ischnocheles (Hermann): Tenerife
Chthonius (C.) jonicus Beier: Hierro
Chthonius (E.) dubius Mahnert: Tenerife (Cueva de San Marcos)
Chthonius (E.) gracilimaniis Mahnert: La Palma
Chthoniiis (E.) machadoi Vachon
m. machadoi: Gomera, Hierro, Gran Canaria (should be verified)
machadoi canariensis Beier: Hierro, Lanzarote, Tenerife
Chthonius (E.) rimicola Mahnert: Hierro, La Palma, Tenerife (MSS and caves)
Chthonius (E.) setosus Mahnert: Tenerife **(MSS)**

Chthonius (E.)tetrachelatus (Preyssler): Gomera, Gran Canana, La Palma, Tenerife
Lagynochthonius curvidigitatus Mahnert: Tenerife (Cueva *Felipe* Reventón)
Paraliochthonius cnnariensis Vachon: Lanzarote
Paraliochthonius martini Mahnert: Hierro (Cueva de Don Justo)
Paraliochthonius tenebrarum Mahnert: Tenerife (Cuevas Negras, Cueva Felipe Reventón, Cueva de **los** Roques)
Tyrannochthonius setiger Mahnert: Tenerife (Cueva del Sobrado)
Tyrannochthonius superstes Mahnert: Tenerife (Cueva Felipe Reventón; Cueva de la Candelaria; Cueva del Sobrado)
Microcreagrella c. caeca (Simon): Hierro, Tenerife
Microcrengrina cavicola Mahnert: La Palma (Cueva Tacande, Cueva *El* Raton)
Microcreagrina hispanica (Ellingsen): Fuerteventura, Gomera, Gran Canaria, Tenerife
Microcreagrina subterranea Mahnert: Gomera, Tenerife (Cueva Felipe Reventón, Cueva de los Roques, MSS)
Cafocheiruscanariensis (Beier): Fuerteventura, Gomera, Graciosa, Hierro, Tenerife
Calocheirus gigas (Mahnert): Gran Canaria
Cafocheirusmirus Mahnert: Gomera
Halominniza oromii Mahnert: Alegranza
Olpium cnnariense Beier: Alegranza, Fuerteventura, Graciosa, Gran Canaria, Lanzarote, Roque del Este, Tenerife
Olpium pallipes (Lucas): Alegranza, Fuerteventura, Gomera, Graciosa, Gran Canaria, Lanzarote, Tenerife
Garypus beniivoisi (Audouin): Fuerteventura, Lanzarote, Lobos, Tenerife
Geogarypus canariensis (Tullgren): Gomera, Gran Canaria, Hierro, Lanzarote, La Palma, Roque del Este, Tenenfe
Geogarypus minor (L. Koch): Gran Canaria
Atemnus politus (Simon): Fuerteventura
Diplotemnus ophthalmicus (Redikorzev): Gran Canaria, Tenerife
Apocheiridium (ferum?) (Simon): Hierro
Canarichelifer teneriffae Beier: Fuerteventura, Gran Canaria, Roque del Este, Tenerife
Chelifer cancroides Linné: Tenerife
Mesochelifer thunebergi Kaisila: Gran Canaria, Tenerife
Pachychelifer (?) sp.: Hierro
Pseudorhacochelifer canariensis Mahnert: Gran Canana, Tenerife
Pseudorhacochelifer schurmanni Beier: Gran Canaria, La Palma, Tenerife
Rhacochelifer gracilimanus Mahnert: Gran Canaria, Tenerife
Rhacochelifer hoggarensis Vachon: Hierro
Rhncochelifer maculatus (L. Koch): Tenerife
Rhàcochelifer pinicola (Nonidez): Gomera, Hierro, Tenerife
Allochernes longepilosus Mahnert: Tenerife
Dendrochernes cyrneus (L. Koch): Gomera, Hierro, Tenerife

Lamprochernes savignyi (Simon): Hierro
Pselaphochernes lacertosus (L. Koch): Gomera
Withius piger (Simon): Gran Canaria, Hierro, La Palma, Tenerife

FAUNAL LISTS OF THE DIFFERENT ISLANDS

Eastern Islands (12 spp., 7 endemic Canary species = 58%, 2 "eastern" species)

FUERTEVENTURA (7/0 endemic species): *Microcreagrina hispanica, Olpium pallipes, O. canariense, Calocheiriu canariensis, Garypus beauvoisi, Atemnus politus, Canarichelifer teneriffae*

LANZAROTE (6/1): *Chthonius* (E.) *machadoi canariensis, Paraliochthonius canariensis, Olpium pallipes, O. canariense, Garypus beauvoisi, Geogarypiis canariensis*

ALEGRANZA (3/1): *Olpium pallipes, O. canariense, Halominniza oromii*

GRACIOSA (3/0): *Olpiiim pallipes, O. canariense, Calocheirus canariensis*

LOBOS (1/0): *Garypus beauvoisi*

ROQUE DEL ESTE (3/0): *Olpium canariense, Geogarypus canariensis, Canarichelifer teneriffae*

Central Islands (34 spp., 20 endemic species = 59%, 12 "central" species)

GRAN CANARIA (15/1 endemic sp.): *Chthoniiis (E.) m. machadoi* (?), *C. (E.) tetrachelatus, Microcreagrina hispanica, Olpiiim pallipes, O. canariense, Calocheirus gigas, Geogarypus canariensis, Geogarypus minor, Diplotemnus ophthalmicus, Withius piger, Mesochelifer thunebergi, Rhacochelifer gracilimanus, Pseiidorhacocheiifer canariensis, P. schrirmanni, Canarichelifer teneriffae*

TENERIFE (29/7): *Chthonius (C.) ischnocheles, Chthoniiis (E.) dubius, C. (E.) machadoi canariensis, Chthonius (E.) rimicola, C. (E.) setosus, C. (E.) tetrachelatus, Parnliochthonius tenebrarum, Lagynochthonius curvidigitatus, Tyrannochthonius superstes, T. setiger, Microcreagrella c. caeca, Microcreagrina hispanicn, M. subterranea, Olpium canariense, Calocheirus canariensis, Garypus beauvoisi, Geogarypus canariensis, Diplotemnus ophthalmicus, Allochernes longepilosus, Dendrochernes cyrneus, Withius piger, Chelifer cancroides, Mesochelifer thunebergi, Rhacochelifer gracilimanus, R. maculatus, R. pinicola, Pseudorhacochelifer canariensis, P. schiirmanni, Canaricheiifer teneriffne*

LA GOMERA (11/1): *Chthonius (E.) m. machadoi* (?), *C. (E,) tetrachelatus, Microcr-eagrina hispanica, M. siibterranea, Olpium pailipes, Calocheirus canariensis, C. mirus, Geogarypus canariensis, Pselaphochernes lacertosus, Dendrochernes cyrneus, Rhncochelifer pinicola*

Western Islands (18 spp., 9 endemic species = 50%, 4 western species)

LA PALMA (7/2 endemic species): *Chthoniiis (E.) gracilimanus, C. (E.) rimicola, C. (E.) tetrachelatus, Microcreagrina cavicola, Geogarypus canariensis, Withius piger, Pseudorhacochelifer schiirmanni*

HIERRO (14/2): *Chthonius (C.) jonicus*, ***Chthoniiis*** *(E.)* ***machadoi*** ssp. *(machadoi,* ***canariensis),*** *C. (E.)rimicola*, ***Paraliochthonius*** *martini*, ***Microcreagrella*** *caeca,* *Calocheirus* ***canariensis,*** *Geogarypus canariensis*, *Apocheiridium (ferum), Lamprochernes savignyi*, *Dendrochernes cyrneus*, *Withius* ***piger,*** *Pachychelifer* (?) sp., ***Rhacochelifer hoggarensis,*** ***R. pinicola***

PRELIMINARY BIOGEOGRAPHIC CONSIDERATIONS:

Up to 1965 only two pseudoscorpion species were recorded from the Canary Islands (TULLGREN 1900: ***Geogarypus canariensis***; BEIER 1940: ***Chelifer cnncroiáes);*** only ten years later, BEIER (1975) mentioned the presence of 18 species (and subspecies) frorn these isiands. The current total of 46 pseudoscorpion species and subspecies enables a short biogeographic analysis, even if additional species will certainly be found and the list of species inhabiting the different islands more or less reflects the collecting efforts and faunistic studies carried out during the last **20** years.

Generally speaking the known species can be attributed to two major groups: cosmopolitan/widespread species and species endernic to the archipelago (or to one island only).

A) COSMOPOLITAN AND WIDESPREAD SPECIES (20)

At least five species have probably been introduced by human activity to the islands, all of them having been transported to several continents (HARVEY 1991): ***Chthonius*** *(C.) ischnocheles*, ***Chthoniiis*** *(E.) tetrachelatus*, ***Chelifer*** *cancroides*, *Lamprochernes savignyi* and ***Withius piger.*** Two of them have apparently colonized several islands (*C. tetrachelatus* and ***Withius piger),*** while the others have been recorded frorn one island only. Since accidental introduction might have occurred in isolated cases only, and since man-made habitats (gardens, parks, houses) have certainly not been intensively studied, these rare records are not surprising.

Amongst the remaining 12 species, probably ten (specific identity of *Apocheiridium* is uncertain) represent species which are widely spread throughout the Mediterranean basin: *Microcreagrina hispanica*; *Olpium pallipes*, *Garypus beauvoisi*, *Geogarypus minor*, *Diplotemnus ophthalmicus*, *Atemnus politus*, *Rhacochelifer maculatus*, *Pselaphochernes lacertosus* and *Dendrochernes cyrneus*. Most are recorded from the central islands (with the most intensive hurnan activity), but also, surprisingly, from Hierro.

Chthonius (C.) jonicus (eastern Mediterranean basin) and ***Rhacochelifer hoggarensis,*** known only frorn Hoggar Mts., might have been accidentally introduced. ***Rhacochelifer pinicola*** and ***Microcreagrella caeca*** represent elements of the fauna of the Iberian peninsula. The distribution of ***Geogarypus canariensis*** is concentrated on the Canary Islands, but it is also recorded from the Madeira Islands and from Morocco.

B) ENDEMIC SPECIES

a) **Cave dwelling species (7)**

Intensive studies of lava tubes of the Canary Islands (e.g. HERNANDEZ *et al.* 1986, MARTIN *et al.* 1986, MARTIN *et al.* 1988; MARTIN & OROMI 1986) yielded a surprising number of highly adapted species known from one cave (or cave system) only, all but two are known from Tenerife and belong to the families Chthoniidae (6) and Syarinidae (1): *Chthoniiis diibiiis, Paraiiochthonius martini, P. tenebrariim, Lagynochthonius curvidigitatus, Tyrannochthonius superstes, T. setiger* and *Microcreagrina cavicola.* Four of them (*C. dubius, P. martini, P. tenebrariim, M. cavicola)* probably derived from widespread Iberian or Mediterranean species. The ancestors of *L. curvidigitatus, T. setiger* and *T. superstes* might have been members of the Afrotropical fauna.

b) **Superficial subterranean milieu** (MSS) **(3)**

High specificity can also be observed in this specialized environment, the involved species occur also in caves, but seem less restricted in their distribution: *C. rimicoia, C. setosus* (Chthoniidae), *Microcreagrina subterranea* (Syarinidae). They belong to the same families as the cave dwelling species.

c) **Epigean species**

At present one rnight also distinguish two groups (species restricted to one or at most two islands, and species recorded from several or most of the islands), but this division is probably artificial (at least for some or perhaps all cheliferid bark inhabiting species), since some specific habitats are still inadequately explored. The following five species seem to be widely distributed in the archipelago: *Olpium canariense* (7 islands), *Calocheirus canariensis (5)* (Olpiidae), *Cnnaricheiifer teneriffae* **(4)** and *Pseudorhacochelifer schurmanni* **(3)** (Cheliferidae). Both subspecies of *Chthonius (E.) mnchadoi* (*machadoi* and *cannriensis)* are recorded from the archipelago (5 islands), but this is awaiting taxonomic revision and detailed comparison with specimens from the Iberian peninsula.

Nine species may be considered (at least for the moment) as endemic species of the one or more of the islands: *Chthonius (E.) gracilimanus* (La Palma), *Paraliochthonius canariensis* (Lanzarote) (Chthoniidae). *Calocheirus gigas* (Gran Canaria), *Calocheirus mirus* (Gomera), *Halominniza oromii* (Alegranza) (Olpiidae), *Allochernes longepilosus* (Tenerife) (Chernetidae). *Mesochelifer thunebergi* (Gran Canaria, Tenerife), *Pseudorhacochelifer canariensis* (Gran Canaria, Tenerife) and *Pachychelifer* (?) sp. (Hierro) (Cheliferidae).

Considering the presently known genera of pseudoscorpions from the Canary Islands, two major faunal influences might be emphasized: central European faunal elements are represented by the genus *Chrhoniiis* (Chthoniidae), but most of the other genera can be considered as representatives of a Mediterranean and North African

(Saharan) fauna. Predominance and surprising radiation can be particularly observed in the families of Syarinidae and Olpiidae. Only two (cave-dwelling) genera might have originated from Aethopian ancestors: *Tyrannochthonius* and *Lagynochthonius*.

ACKNOWLEDGEMENTS

I wish to express my thanks to the following colleagues for their patience and confidance: Prof. Pedro Oromí and his colleagues (University of La Laguna, Tenerife), Dr Claude Besuchet, Dr Bernd Hauser and Dr Charles Lienhard (Natural History Museum of Geneva), Dr Ernst Heiss (Innsbruck), Mr. John Murphy (Hampton) and Dr Konrad Thaler (University of Innsbruck). Prof. J. Heurtault (Paris Natural History Museum) and Dr Jürgen Gruber (Vienna Natural History Museuni) tried to trace the type specimen of *Chelifer mayeti* Simon. I am deeply indebted to Dr Mark Judson (Paris Natural History Museum) for his comments and linguistic help.

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