

Taxonomy of the Neotropical freshwater crab family Trichodactylidae II. The genera *Forsteria*, *Melocarcinus*, *Sylviocarcinus*, and *Zilchiopsis* (Crustacea: Decapoda: Brachyura)

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With 57 figures

Abstract

Four genera of the Trichodactylidae-Valdiviini are revised. While *Forsteria* and *Melocarcinus* contain only one species each, *Sylviocarcinus* has five (one new) and *Zilchiopsis* three valid species. The synonymies of the more common species are discussed in detail.

Introduction

The present paper deals with a revision of most of the genera of the tribe Valdiviini. Only *Valdivia* and *Rotundovaldivia* were excluded and will be dealt with in a separate publication. It was especially the rediscovery of *Sylviocarcinus devillei* H. MILNE-EDWARDS 1853, that provided the impetus for the revision of that genus. Early on this study it became apparent that the morphology of *Sylviocarcinus* and *Zilchiopsis* was very similar and this had resulted in a great number of specimens being misidentified. To clear up the current confusion both genera are revised. Comments are made about the two other genera in the tribe together with listings of the species currently recognized including synonyms. To assist other colleagues working in the field of South American freshwater crabs a key to the species is provided for each genus.

The measurements given in the descriptions of the individual species refer to (in mm): Carapace-breadth: Carapace-length: Body height: Frontal breadth. Plp 1 and plp 2 were used for referring to the first and second male pleopods, respectively.

The following abbreviations have been used throughout the paper for repositories of specimens:

AMNH = American Museum of Natural History, New York; ANSP = Museum of the Academy of Natural Sciences of Philadelphia; EPA = Expedição Permanente na Amazônia; FCEyN =

Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Buenos Aires; FMNH = Field Museum of Natural History, Chicago; FZB = Museu de Ciências Naturais da Fundação Zoológica do Rio Grande do Sul, Porto Alegre; INPA-CR = Coleção Sistemática de Invertebrados, Seção Crustacea, Instituto Nacional de Pesquisas da Amazônia; IRSNB = Institut Royal des Sciences Naturelles de Belgique, Bruxelles; MACN = Museo Argentino de Ciencias Naturales "BERNARDINO RIVADAVIA", Buenos Aires; MCSNG = Museo Civico di Storia Naturale "GIACOMO DORIA", Genova; MCSNM = Museo Civico di Storia Naturale di Milano; MCZ = Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts; MLP = Museo de La Plata, La Plata; MNHN = Museum National d'Histoire Naturelle, Paris; MNRJ = Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro; MPEG = Museu Paraense EMILIO GOELDI, Belém; MZUSP = Museu de Zoologia da Universidade de São Paulo, São Paulo; MZUT = Museo ed Istituto di Zoologia Sistemática dell'Università di Torino; MZVS = Musée Zoologique de l'Université LOUIS PASTEUR et de la Ville de Strasbourg, Strasbourg; NHMB = Naturhistorisches Museum Basel, Basel; NHML = The Natural History Museum, London; NHMW = Naturhistorisches Museum Wien, Wien; NNHM = Nationaal Natuurhistorisch Museum, Leiden; NRMSt = Naturhistoriska Riksmuseet, Stockholm; SMF = Senckenberg Museum, Frankfurt a. M.; UFPA = Coleção de Crustacea da Universidade Federal da Paraíba, João Pessoa; UFPE = Coleção Zoológica do Departamento de Oceanografia da Universidade Federal de Pernambuco, Recife; UFRGS = Coleção Zoológica do Departamento de Zoologia da Universidade Federal do Rio Grande do Sul, Porto

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Alegre; UNAM = Colección de Carcinología del Instituto de Biología, Universidad Nacional Autónoma de México, México, D. F.; USNM = National Museum of Natural History, Smithsonian Institution, Washington, D. C.; UZM = Universitetets Zoologiske

Museum, København; ZMB = Zoologisches Museum der Humboldt-Universität, Berlin; ZMH = Zoologisches Institut und Museum, Hamburg; ZSM = Zoologische Staatssammlung, München.

Systematic account

Forsteria BOTT 1969

1969 *Valdivia* (*Forsteria*) BOTT, Abh. senckenb. naturf. Ges., 518: 37.

Type-species: *Valdivia* (*Forsteria*) *venezuelensis edentata* BOTT 1969 [by original designation].

Forsteria venezuelensis (RATHBUN 1905)

(Figs. 1–6, 49)

1904 *Trichodactylus* (*Valdivia*) *venezuelensis* RATHBUN, Nouv. Arch. Mus. Hist. nat., (4)6: 242 [Nomem nudum].

1905 *Trichodactylus* (*Valdivia*) *venezuelensis* RATHBUN, Nouv. Arch. Mus. Hist. nat., (4)7: pl. 17, fig. 10.

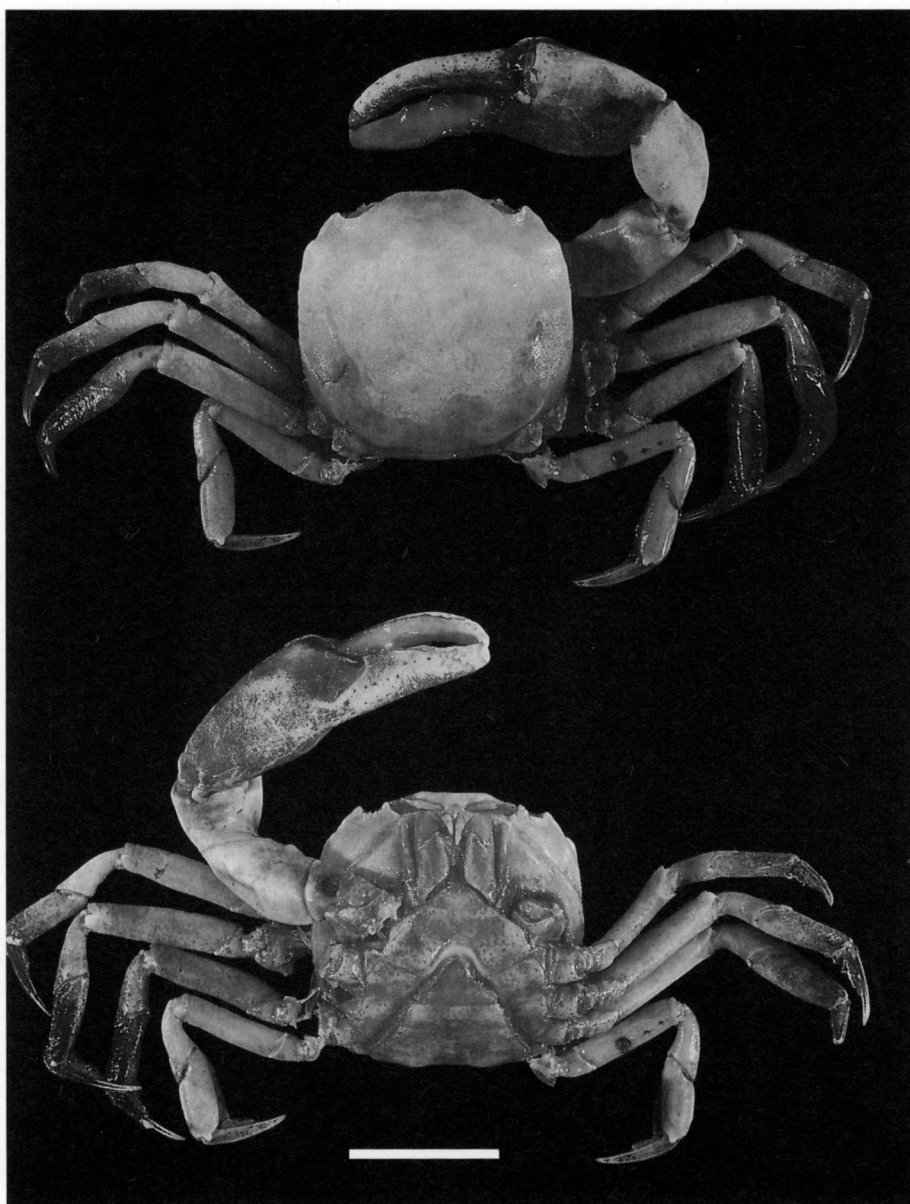
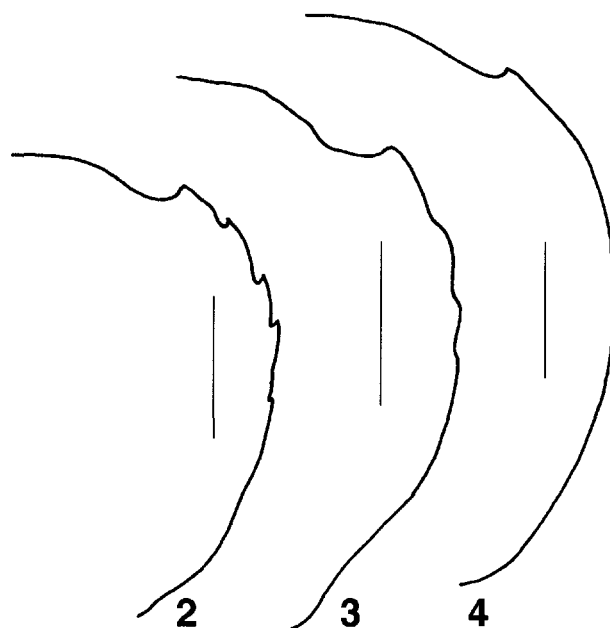
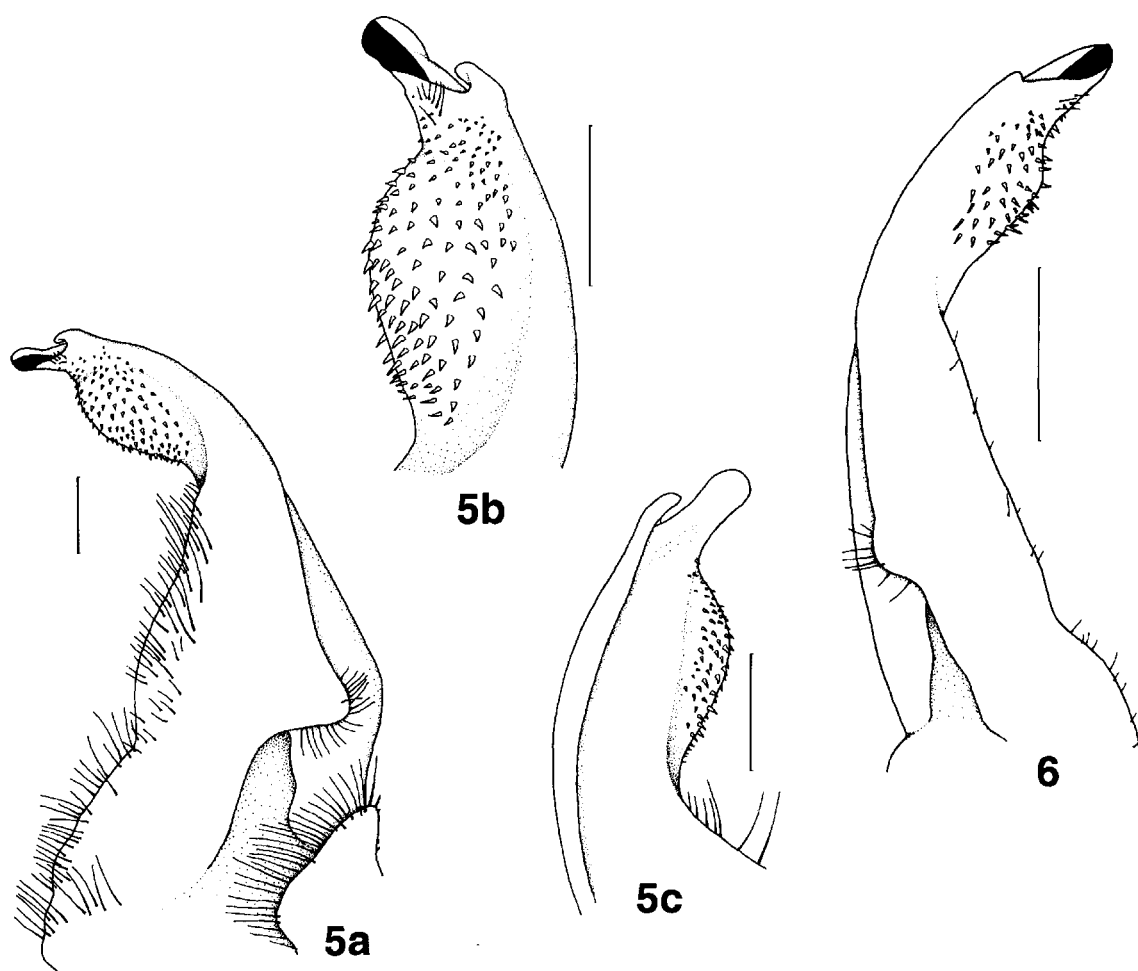


Fig. 1. *Forsteria venezuelensis* (holotype of *F. venezuelensis edentata*, ZSM 1102/1), dorsal and ventral aspect. — Scale 20 mm.

Figs. 2-4. *Forsteria venezuelensis*, carapace contours. — 2) Paralectotype, USNM 30029; 3) USNM 234450; 4) USNM 184333. — Scales 1 mm.



- 1906 *Trichodactylus (Valdivia) venezuelensis*, — RATHBUN, Nouv. Arch. Mus. Hist. nat., (4)8: 47.
 1968 *Trichodactylus (Valdivia) ornatifrons* PRETZMANN, Entom. Nachrbl., 15(2): 3
 1969 *Valdivia (Forsteria) venezuelensis venezuelensis*, — BOTT, Abh. senckenb. naturf. Ges., 518: 37, pl. 5, fig. 9a-b.
 1969 *Valdivia (Forsteria) venezuelensis edentata* BOTT, Abh. senckenb. naturf. Ges., 518: 38, pl. 6, fig. 10a-b, pl. 19, fig. 40.
 1972 *Valdivia venezuelensis*, — SMALLEY & RODRIGUEZ, Tulane Stud. Zool. Bot., 17(3/4): 50, figs. 13-14.
 1977 *Valdivia venezuelensis*, — DIAZ & RODRIGUEZ, Biol. Bull., 153: 486.



Figs. 5-6. *Forsteria venezuelensis*, male plp 1. — 5) USNM 234450, right limb (a: total, ventro-mesial aspect; b: tip, ventro-mesial aspect; c: tip, dorso-lateral aspect); 6) Holotype of *Trichodactylus (Valdivia) ornatifrons* PRETZMANN 1968. — Scales 1 mm.

- 1980 *Valdivia venezuelensis*, — RODRIGUEZ, Los Crustaceos Decapodos de Venezuela: 343, fig. 99.
 1981 *Valdivia venezuelensis*, — RODRIGUEZ, Aquat. Biota trop. South America, 1: 48.
 1983 *Valdivia (Forsteria) meekei*, — PRETZMANN, Ann. naturhist. Mus. Wien, 84B: 325 [part., pl. 7, at least fig. 17].
 1992 *Forsteria venezuelensis*, — RODRIGUEZ, Faune tropicale, 31: 98, figs. 1G, 4S, 5G, 8A, 9H, 13D, 15I, 34A–H.

Lectotype: ♀ (MNHN BP 333), Venezuela, Orinoco, CHAFFANJON.

Paralectotype: 1 ♀ (USNM 30029), data as lectotype.

Material: Venezuela: 1 ♀ (ZMB 5671), SACHS; 1 ♀ (MNHN B-17674), llanos de Venezuela, F. GEAY. — Estado Aragua: 1 ♂ (USNM 234450), Rio Guarico, between San Sebastian and San Casimiro, 1942, L. P. SCHULZ. — Estado Cojedes: 1 ♂ (USNM 91234), Quebrada Caramacate, 2 km N de Apartadero, 2.X.1949, A. F. GEPEZY & C. CIFERNI. — Estado Monagas: 1 ♂ [partially broken], holotype of *Trichodactylus (Valdivia) ornatifrons* PRETZMANN (USNM 119883), Guarapichi river, Caicara, V.1952, F. D. SMITH; 1 ♂ (USNM 184333), idem, 8.IX.1968, ESTEVES. — Estado Bolívar: 1 ♀ (ZSM 1101-1), Ciudad Bolívar, WEHRENDT; 1 ♂ (37.2: 34.8), holotype of *Valdivia (Forsteria) venezuelensis edentata* BOTT (ZSM 1102-1), Boliven [probably a misspelling for Bolívar], LENZ. — Estado Apure: 1 ♂ 1 ♀ (MNHN B-17675), plaine jusqu'aux pieds des Andes, dans un affluent de l'Apure, F. GEAY.

Colombia: Depto Meta: 2 ♂ (SMF 22226), afluente del Rio Meta, mun. de Meta/caño Danielero, finca El Cairo, mun. Restrepo, 16 km de Villavicencio; 1 ♂ (SMF 22227), Rio Meta, Puerto Lopez, 17.III.1979, V. PRAHL; 2 ♂ 1 ♀ (SMF22228), 1 ♂ 1 ♀ (INPA-CR 647), idem.

Diagnosis: Carapace with 3–4 anterolateral teeth, fading away in large specimens. Abdominal segments III–V fused. Thoracic sternum and endophragmal system as in *Valdivia*. Male plp 1 with a distinctly bulged subdistal lobe on its latero-ventral side; spine field well developed, confined to subdistal lobe; basal lobe inconspicuous. Suture displaced to the dorsal side in the distal third of the limb, returning to the ventral side at the extreme tip where it meets the terminally situated distal opening. Plp 2 longer than plp 1.

Measurements: 38.0 : 34.3 : ? : ? (lectotype ♀)

Type locality: "Venezuela, Orénoque".

Distribution: Orinoco drainage of Venezuela and Colombia.

Remarks: The present species is quite variable with respect to carapacial characters. Large specimens show a tendency towards swelling of the carapace and fading away of the anterolateral teeth. In fact, different age classes have been considered as separate species. PRETZMANN (1968a) described a juvenile specimen with visible granula on the frontal margin under the specific name *T. (V.) ornatifrons*. BOTT (1969), in contrast based the genus *Forsteria* on an adult male without any trace of anterolateral teeth, which he described as a new subspecies under the name *Forsteria venezuelensis edentata*. After having examined the material at our disposition, it becomes clear that only one species is involved and that both PRETZMANN's and BOTT's taxa cannot be separated from *F. venezuelensis*.

Melocarcinus MAGALHÃES & TÜRKAY 1996

- 1996 *Melocarcinus* MAGALHÃES & TÜRKAY, Senckenbergiana biol., 75 (1/2): 87.

Melocarcinus meekei (PRETZMANN 1968)

(Figs. 7, 8, 49)

- 1968 *Trichodactylus (Valdivia) meekei* PRETZMANN, Entom. Nachrbl., 15(2): 2.
 1968 *Valdivia (Valdivia) meekei*, — PRETZMANN, Entom. Nachrbl., 15 (7/8): 71.
 1969 *Trichodactylus (Valdivia) meekei*, — BOTT, Abh. senckenb. naturf. Ges., 518: 40.
 1983 *Valdivia (Forsteria) meekei*, — PRETZMANN, Ann. naturhist. Mus. Wien, 84(B): 325, pl. 6, figs. 14–15, ? pl. 7, fig. 16 [part., nec pl. 7, fig. 17 = *Forsteria venezuelensis*].
 1992 *Trichodactylus (Valdivia) meekei*, — RODRIGUEZ, Faune tropicale, 31: 100.

Holotype: ♂ (USNM 59345), Panama: Prov. Darién, Rio Yape, 6.III.1912, MEEK & HILDEBRAND, Smithsonian Biological Survey.

Paratype: 1 ♂ (USNM 59345), data as holotype.

Material: Panama: Prov. Darién: 1 ♀ (AMNH 11431), Rio Chucunaque, 4.IV.1924, MARSH-Darién Exped.

Diagnosis: Carapace with 4 anterolateral teeth. Abdominal segments III–V fused. Sternal plate and endophragmal system (judged by external view) as in *Sylviocarcinus*. Male plp 1 with a subdistal lobe, subterminal spine field well developed, arranged in one longitudinal area, which is split proximally on the dorsolateral face; stem with a prominent basal lobe on its ventral border; suture begins at the ventro-mesial side, in the distal half it is more or less displaced towards the dorsal side, where it meets the similarly directed distal opening. Plp 2 longer than plp 1.

Measurements: 56.7 : 51.3 : ? : ? (holotype ♂)

Type locality: Panama, Prov. Darién, Rio Yape, 08°07'N 77°35'W.

Distribution: Known only from near the type-locality.

Remarks: PRETZMANN (1968, 1983) cited the type locality of the present species as "Colombia". In fact, there is more specific information on the locality label of the type series deposited in the collection of the USNM: "Rio Yappi, MEEK & HILDEBRAND, Smithsonian Biological Survey, 6. III. 1912". The lapsus is explained by the fact, that Panama was a province of Colombia until 1903. Only one specimen has been recorded since its description.

Sylviocarcinus H. MILNE-EDWARDS 1853

- 1853 *Sylviocarcinus* H. MILNE-EDWARDS, Ann. Sci. nat., (3)20: 215.

Key to the species

1. Abdomen with segments III–V fused, VIth segment free 2
- Abdomen with segments III–VI fused 4
2. Frontal margin usually beset with pearl-shaped granules or spines, not distinct in very large specimens. Sub-distal lobe of male plp 1 strong *S. devillei*
- Frontal margin unarmed. Subdistal lobe of male plp 1 absent or very weak 3
3. Male plp 1 without a trace of a subdistal lobe, subterminal spine fields confluent, forming a well developed spiny area covering nearly the whole distal half of the limb *S. maldonadoensis*

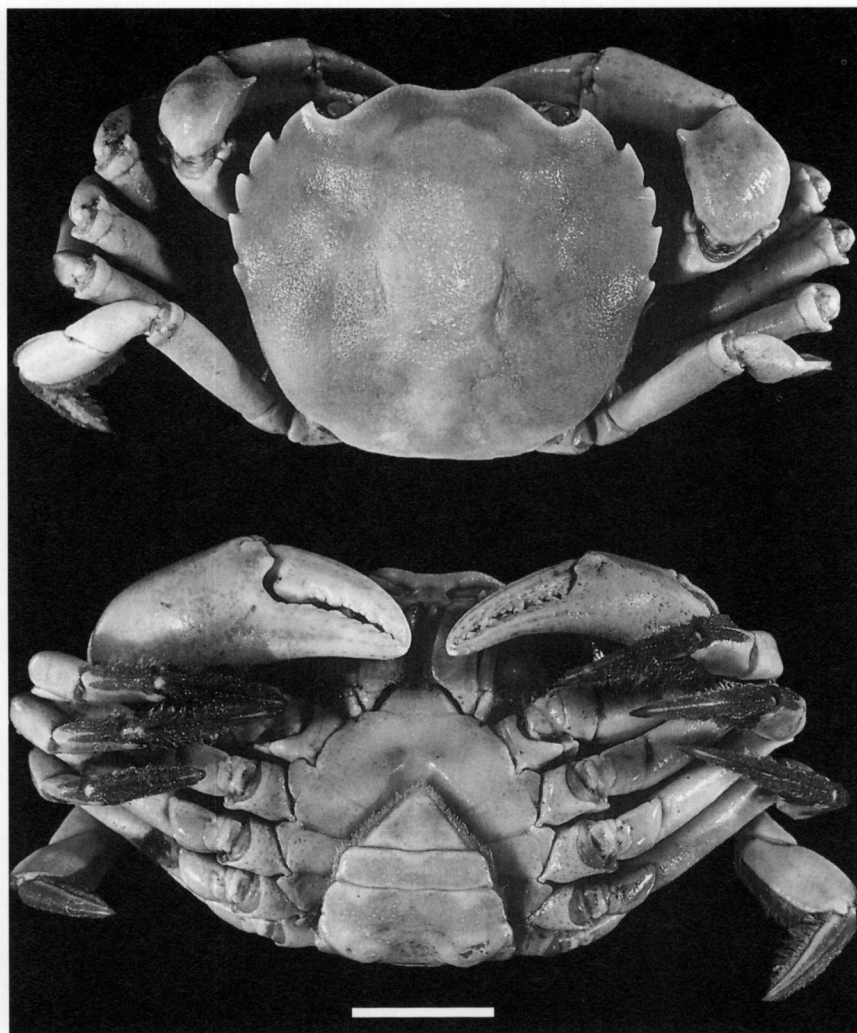
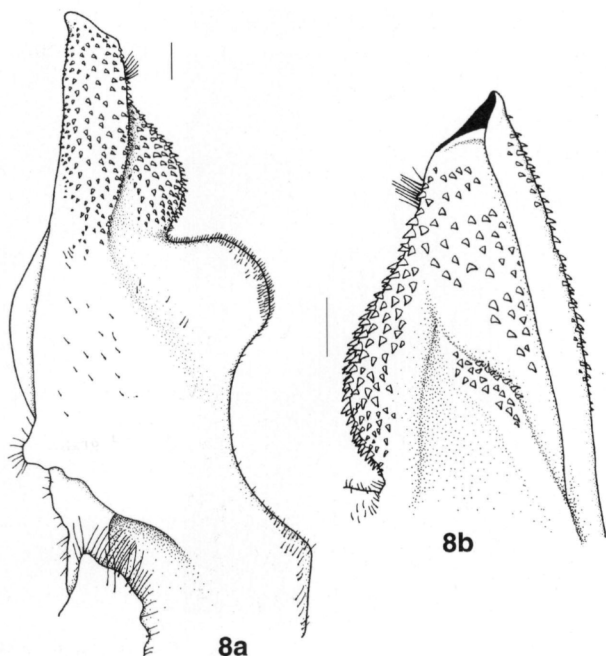


Fig. 7. *Melocarcinus meekei* (holotype, USNM 59345), dorsal and ventral aspect. — Scale 20 mm.



- Male plp 1 with a very faint subdistal lobe, subterminal spine fields well separated in a distoproximal direction, only occupying distal third of the appendage *S. piriformis*
- 4. Subdistal lobe evident, median patch of the subterminal spine field rather strong *S. pictus*
- Subdistal lobe poorly developed, as is the median patch of the subterminal spine-field *S. australis* n. sp.

Sylviocarcinus devillei H. MILNE-EDWARDS 1853

(Figs. 9–26)

1853 *Sylviocarcinus devillei* H. MILNE-EDWARDS, Ann. Sci. nat., (3)20: 215.

1869 *Sylviocarcinus peruvianus* A. MILNE-EDWARDS, Ann. Soc. entom. France, (4)9: 174.

Fig. 8. *Melocarcinus meekei* (holotype, USNM 59345), left male plp 1. — a) Whole limb, ventro-mesial aspect; b) tip, dorso-lateral aspect. — Scales 1 mm.

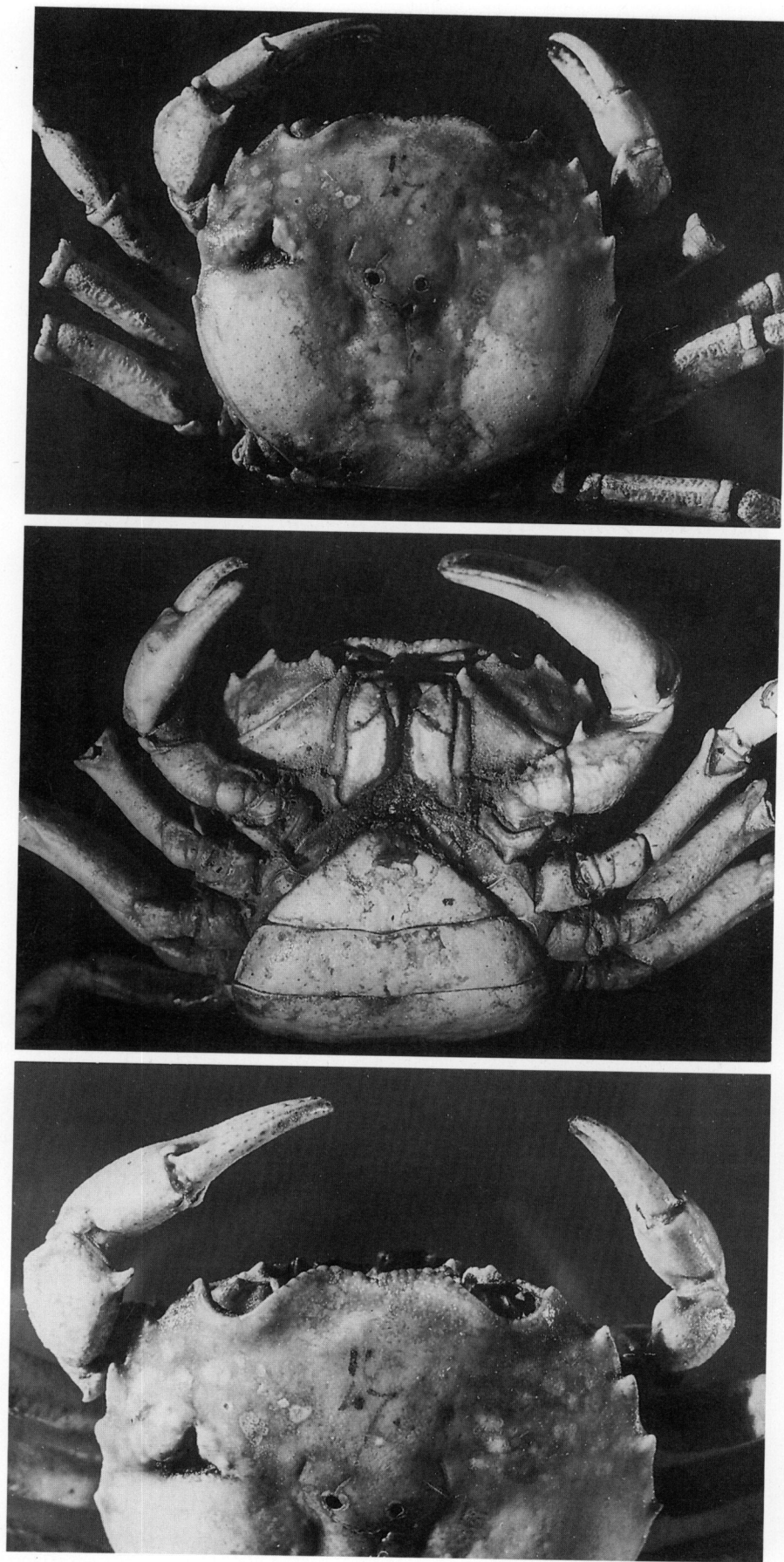


Fig. 9. *Sylviocarcinus devillei* (holotype, MNHN B4039S), dorsal and ventral aspect, detail of front (Photo J. REBIÈRE).

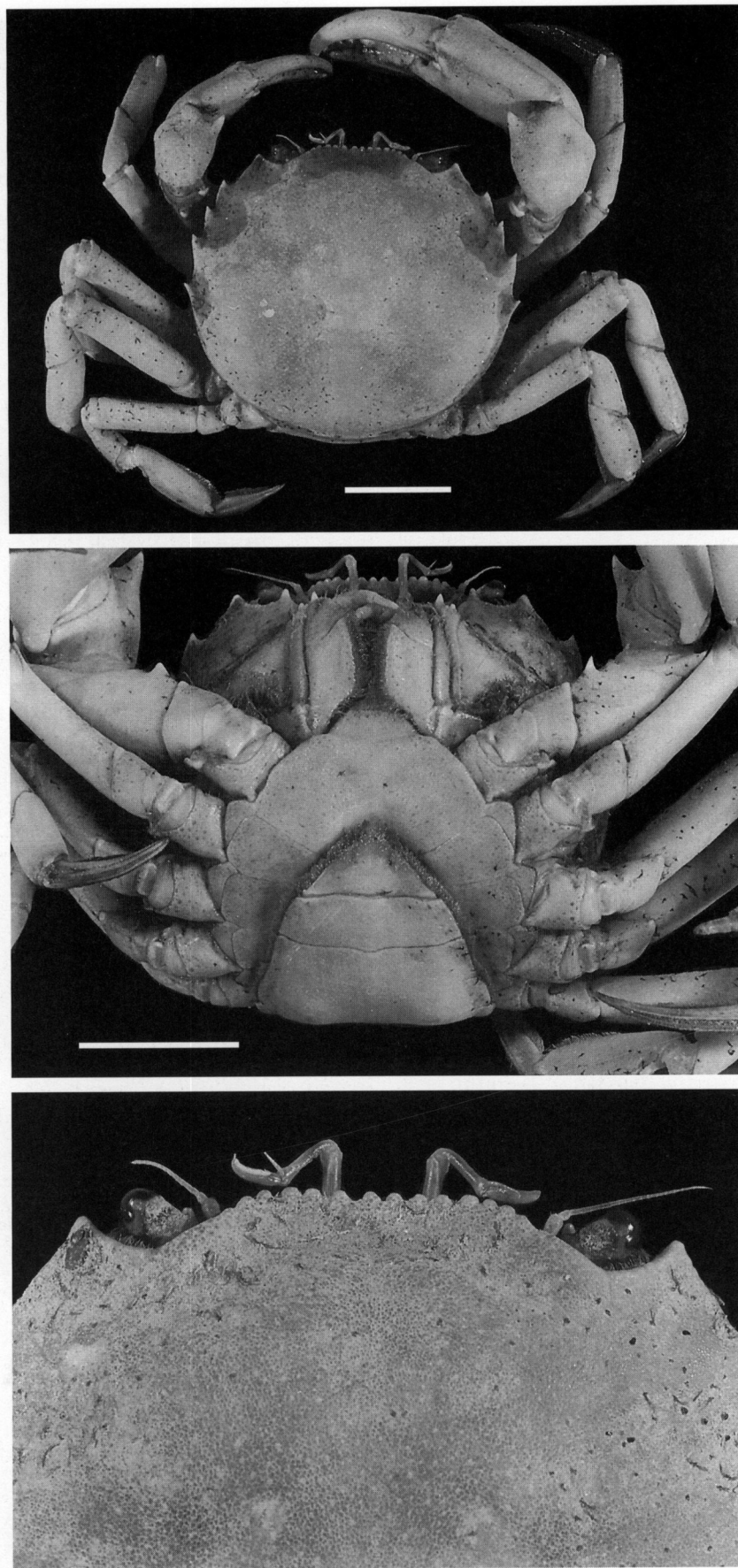
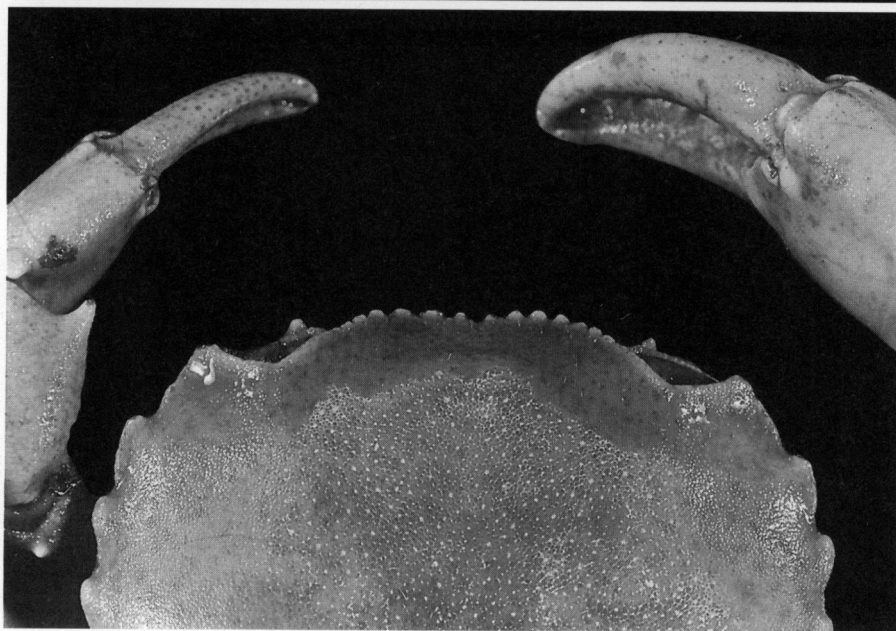
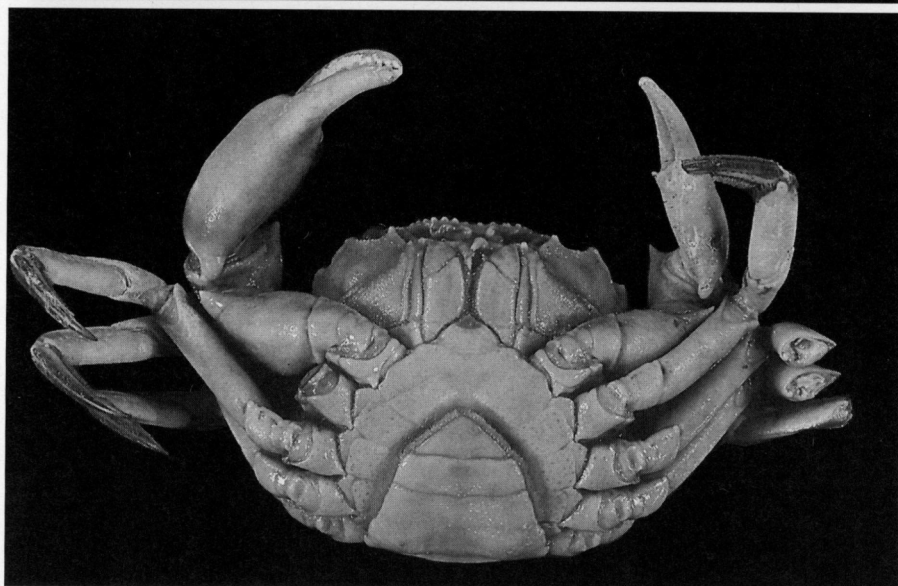
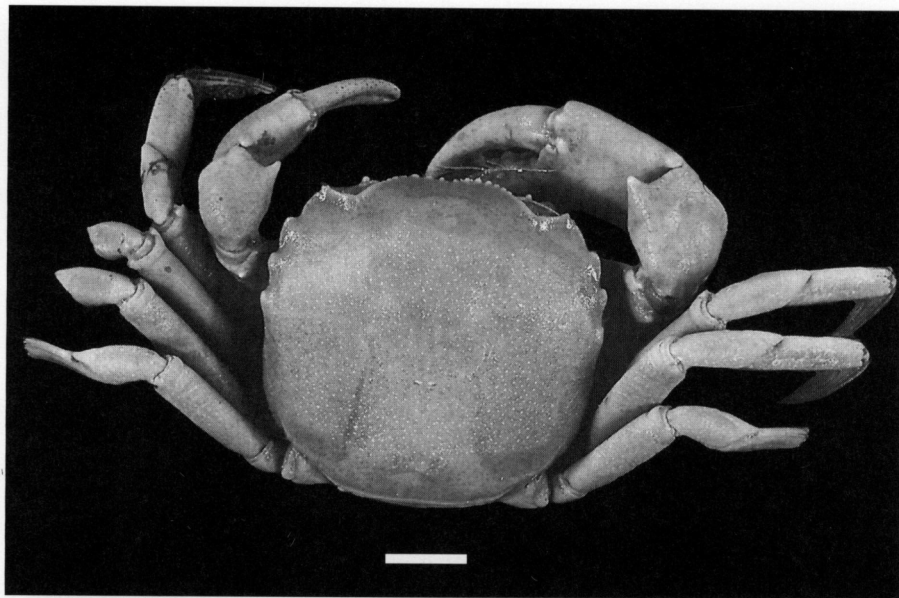


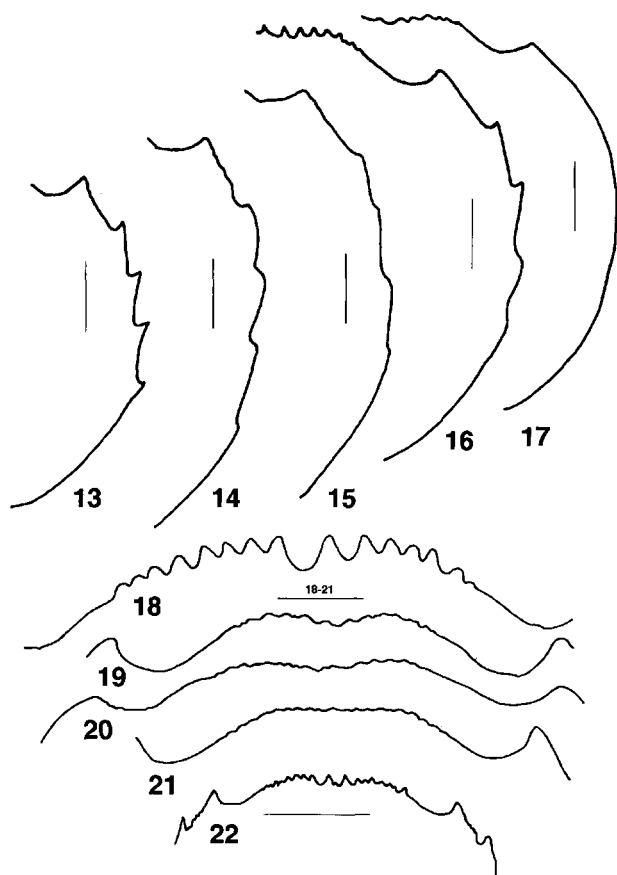
Fig. 10. *Sylviocarcinus devillei* (SMF 12705), dorsal and ventral aspect, detail of front. — Scale 20 mm.

- 1880 *Dilocarcinus spinifrons* KINGSLEY, Proc. Acad. nat. Sci. Philadelphia, 1880: 35.
- 1893 *Dilocarcinus margaritifrons* ORTMANN, Zool. Jb. Syst., 7: 492, pl. 17, fig. 11.
- 1969 *Sylviocarcinus devillei*, — BOTT, Abh. senckenb. naturf. Ges., 518: 28, pl. 3 figs. 5a–c. [part.]
- ? 1969 ? *Valdivia* (*Valdivia*) *devillei*, — SCHMITT, Proc. biol. Soc. Washington, 82: 101.
- 1970 *Trichodactylus* (*Valdivia*) *margaritifrons*, — DEL SOLAR, BLANCAS & MAYTA, Catal. Crust. Peru: 31.
- 1970 *Trichodactylus* (*Valdivia*) *peruvianus*, — DEL SOLAR, BLANCAS & MAYTA, Catal. Crust. Peru: 31.
- 1970 *Trichodactylus* (*Valdivia*) *margaritifrons*, — FONSECA, Infme. Inst. Mar Peru, 35: 51.
- 1970 *Trichodactylus* (*Valdivia*) *peruvianus*, — FONSECA, Infme. Inst. Mar Peru, 35: 51.
- 1972 *Sylviocarcinus gigas* SMALLEY & RODRIGUEZ, Tulane Stud. Zool. Bot., 17(3/4): 48, figs. 6–7, 21–22.
- 1981 *Holthuisia peruviana margaritifrons*, — PRETZMANN & MAYTA, Anz. österr. Akad. Wiss. math. naturw. Kl., 1980(9): 141, figs. 9–10.
- 1981 *Sylviocarcinus devillei*, — RODRIGUEZ, Aquat. Biota trop. South America, 1: 48.
- 1981 *Sylviocarcinus gigas*, — RODRIGUEZ, Aquat. Biota trop. South America, 1: 48.
- 1983 *Holthuisia peruviana peruviana*, — PRETZMANN, Ann. naturhist. Mus. Wien, 84(B): 323, pl. 4, figs. 9–10, pl. 5, figs. 11–13.
- 1985 *Sylviocarcinus gigas*, — CAMPOS, Caldasia, 14(67): 270.
- 1987 *Trichodactylus castelnaui*, — TRAJANO, Revta. bras. Zool., 3 (8): 536 [non *Dilocarcinus castelnaui* H. MILNE-EDWARDS 1853.]
- 1992 *Sylviocarcinus devillei*, — RODRIGUEZ, Faune tropicale, 31: 71, figs. 4H, 5C, 7F, 9B, 13A, 25A–F.
- Holotype: ♀ (MNHN B40395), “Salinas (Haute Amazon)”, V–VI. 1844, leg. F. DE CASTELNAU & E. DEVILLE.
- Material: Brazil: Estado do Amapá: 1 ♂ (INPA-CR 016), Rio Cupixi, at bridge on road to Serra do Navio, I. 1984, leg. M. GOULDING; 1 ♂ (INPA-CR 526), Rio Jari, near Cachoeira de Santo Antônio, 19–16.VI.1987, leg. M. JEGU & J. ZUANON; 2 ♂ (INPA-CR 652), Rio Araguari, Cachoeira da Capivara, 19. VIII. 1992, leg. C. MAGALHÃES. — Estado do Amazonas: 1 ♂ (MZUSP 6336), Costa da Altamira, Rio Japurá, 4.XII.1977; 6 ♀ (ZMH K-8715), Rio Solimões, Manacapuru, 8.VIII.1924, leg. W. EHRLHARDT; 3 ♀ (SMF 4334), 1 ♀ (SMF 18705) idem, 9.VIII.1924, W. EHRLHARDT; 1 ♂ (INPA-CR 527), Rio Amazonas, Ilha do Careiro, Costa da Terra Nova, near Manaus, 12.VII.1986, leg. C. MAGALHÃES; 1 ♂ 2 ♀ (AMNH 11432), Rio Purus, 1934, leg. B. A. KRUKOFF; 1 ♀ (MZUSP 6363), Rio Amazonas, Ilha Sorubim, acima de Coari, 29.IX.1968, EPA; 1 ♀ (MNRJ MD-1263), Rio Javari, Benjamin Constant; 1 ♀ (MZUSP 1812), Benjamin Constant, IX.1962, leg. K. LENKO; 1 ♂ (MNRJ MD-1265), Rio Madeira; 1 ♀ [poor cond.] (AMNH 2508), Rio Madeira, 3.IV.1914, The ROOSEVELT Exped. — Estado do Pará: 1 ♀ (USNM 234440), 1921, leg. E. GARBE; 1 ♀ (UFPB 3108), Rio Tocantins, 26.VI.1986; 2 ♀ (MZUSP 6304), Igarapé Inó, Furo de Panquera (Rio Tocantins), 1.X.1970, leg. N. MENEZES; 2 ♂ 1 ♀ (INPA-CR 308), Rio Tocantins, Capuerana, 11.XI.1981, Eq. Ictiol. INPA; 3 ♂ 5 ♀ (INPA-CR 307), 1 ♂ 1 ♀ (UNAM EM 9913), Rio Tocantins, Tukurui, 10–11.IX.1984, leg. E. FERREIRA; 1 ♂ 2 ♀ (SMF 18710), idem, 19.IX.1984, leg. E. FERREIRA; 1 ♂ (INPA-CR 349), idem, 1.X.1985, leg. A. STORTI; 2 ♂ 10 ♀ (INPA-CR 138), 1 ♂ (SMF 18704), idem, 17.IX.1984, Eq. Ictiol. INPA; 1 ♂ 1 ♀ (MNRJ MD-1122), Rio Tocantins, near Vila Pederneiras, Tukurui, 22.IX.1984, leg. W. ZWINK & L. ALVARENGA; 2 ♀ (MNRJ MD-1118), 1 ♀ (MNRJ MD-1128), Rio Tocantins, Canal do Muru, Tukurui, 21.IX.1984, leg. W. ZWINK & L. ALVARENGA; 1 ♂ 2 ♀ (MNRJ MD-1132), idem, 22.IX.1984, leg. W. ZWINK & L. ALVARENGA; 1 ♂ 1 ♀ (MNRJ MD-1124), Rio Tocantins, Tukurui, 15.IX.1984, leg. W. ZWINK & L. ALVARENGA; 1 ♀ (MNRJ MD-1125), idem, 20.IX.1984, leg. W. ZWINK & L. ALVARENGA; 4 ♂ (MNRJ MD-1126), Rio Tocantins, Nazaré dos Patos, Tukurui, 19.IX.1984, leg. W. ZWINK & L. ALVARENGA; 2 ♂ 2 ♀ (MNRJ MD-1130), Rio Tocantins, Canal Jaguara, Tukurui, 20.IX.1984, leg. W. ZWINK & L. ALVARENGA; 1 ♂ 3 ♀ (MNRJ MD-1133), Rio Tocantins, between Canal do Muru and Canal do Tauá, Tukurui, 22.IX.1984, leg. W. ZWINK & L. ALVARENGA; 1 ♀ (MZUSP 6316), Rio Tocantins, Jatobal, 16.IX.1970, leg. N. MENEZES; 2 ♀ (MZUSP 4800), Rio Tapajós, Cachoeira Uruá, 26.I.1979, leg. J. C. DE OLIVEIRA; 1 ♂ (MZUSP 7048), Rio Itacaiúnas, Serra dos Carajás, 8.VIII.1985, leg. J. HOLDER. — Estado do Mato Grosso: 1 ♀ (MNRJ MD-1260), Porto de São Domingos, Rio Itapirapá, 1945, leg. N. VIDAL; 1 ♀ (MZUSP 2320), Barra do Rio Tapirapá, 30.VII.1962, leg. B. MALKIN. — Estado do Acre: 1 ♂ (MZUSP 2409), Seringal Oriente, Rio Juruá, 12 km from Vila Taumaturgo, VII.1956, leg. F. C. NOVAES; 1 ♂ (MPEG), Rio Azul, Fazenda Bom Sossego, 14. V. 1986, leg. D. G. CAMPBELL. — Estado de Goiás: 1 ♂ (MZUSP 6323), Complexo São Mateus-Imbirá, Mun. São Domingos, 4.VII.1979, leg. C. LINO; 1 ♂ 2 ♀ (MNRJ MD-1185), Rio Tocantins, Minaçu, 20.X.1985, Eq. Malac. e Ictiol. MNRJ; 1 ♂ (MZUSP 9694), Ribeirão Faria, São João d'Aliança, 25.IX.1988, leg. E. C. LOPES; 1 ♂ (USNM 231213), Ribeirão Cangalha, about 13 air km NNE Formosa, Tocantins drain., 13.XI.1984, leg. W. C. STARNES.
- Colombia: Intendencia del Caquetá: 1 ♂ [71.9: 67.6], holotype of *Sylviocarcinus gigas* SMALLEY & RODRIGUEZ (USNM 139120), Rio Ortegua, Near Venecia, III.1966, unknown collector, recd. from DALE LITTLE; 14 ♂ 9 ♀, paratypes of *S. gigas* (USNM 139121), idem.
- Ecuador: Prov. Napo-Pastaza: 1 ♀, broken (SMF 12031), Rio San Miguel, near La Tipisca, XII.1970, leg. H. LÜDECKE; 1 ♀ (USNM 98054), Concepción, I.1955, leg. C. A. OLALLA; 1 ♀ (NHMW 4181), Sarayacu-Bobonaza, 1972, leg. C. A. OLALLA; 1 ♂ (NHMW 4182), Rio Pucaya-Bobonaza, trib. of Rio Pastaza, VII.1957, leg. C. A. OLALLA.
- Peru: 1 ♀ [65.1:58.2], dry, holotype of *Sylviocarcinus peruvianus* A. MILNE-EDWARDS (MNHN 4048), [?] Guyallaya, BARAQUIN. — Depto Amazonas: 1 ♂ 1 ♀ (USNM 231809), 5 ♂ 1 ♀ (USNM 228895), Rio Caterpiza, Caterpiza, 6.II.1980, leg. R. Mc DIORMID; 1 ♀ (USNM 228899), Caterpiza, 24.X.1979, leg. R. Mc DIORMID; 1 ♀ (USNM 231808), 1 ♀ (USNM 231790), Rio Yutupis, Shiringa, 29.I.1980, leg. R. Mc DIORMID; 1 ♂ 1 ♀ (USNM 231590), idem, 16.II.1980, leg. R. Mc DIORMID; 1 ♀ (USNM 231794), 1 ♀ (USNM 228898), idem, 2.II.1980, leg. R. Mc DIORMID; 1 ♂ (USNM 228896), idem, 3.II.1980, leg. R. Mc DIORMID; 12 ♂ 3 ♀ (USNM 231591), Rio Yutupis, La Poza, 20.II.1980, leg. R. Mc DIORMID; 1 ♂ (USNM 231802), 1 ♀ (USNM 231792), 1 ♂ (USNM 231795), Rio Santiago, 1980, leg. R. Mc DIORMID; 1 ♂ (USNM 231797), idem, 26.VI.1980, leg. R. SWIFT et al.; 1 ♀ (USNM 231801), 1 ♂ (USNM 231803), Rio Santiago, La Poza, 26.I.1980, leg. R. Mc DIORMID; 1 ♂ (USNM 231807), 1 ♂ 1 ♀ (USNM 231806), 1 ♀ (USNM 231786), 1 ♂ (USNM 231793), 1 ♀ (USNM 231577), idem, 22.I.1980, leg. R. Mc DIORMID; 2 ♀ (USNM 231581), idem, 26.I.1980, leg. R. Mc DIORMID; 1 ♂ 1 ♀ (USNM 231579), 1 ♂ (USNM 231578), 1 ♀ (USNM 231798), idem, 27.I.1980, leg. R. Mc DIORMID; 1 ♂ 1 ♀ (USNM 231804), 2 ♂ (USNM 231580), 1 ♂ (USNM 228880), idem, 28.I.1980, leg. R. Mc DIORMID; 1 ♀ (USNM 231785), idem, 24.I.1980, leg. R. Mc DIORMID; 1 ♂ (USNM 231788), 21.I.1980, leg. R. Mc DIORMID; 1 ♀ (USNM 228881), idem, 4.II.1980, leg. R. Mc DIORMID; 1 ♂ 1 ♀ (USNM 228897), idem, 31.I.1980; 1 ♂ (USNM 231576), Rio Santiago, near Galilea, 22.I.1980, leg. R. Mc DIORMID; 2 ♀ (USNM 231805), idem, 23.I.1980, leg. R. Mc DIORMID; 1 ♀ (USNM 321800), 1 ♀ (USNM 231582), 1 ♀ (USNM 228898), 1 ♂ 1 ♀ (USNM 231799), idem, 28.I.1980, leg. R. Mc DIORMID;

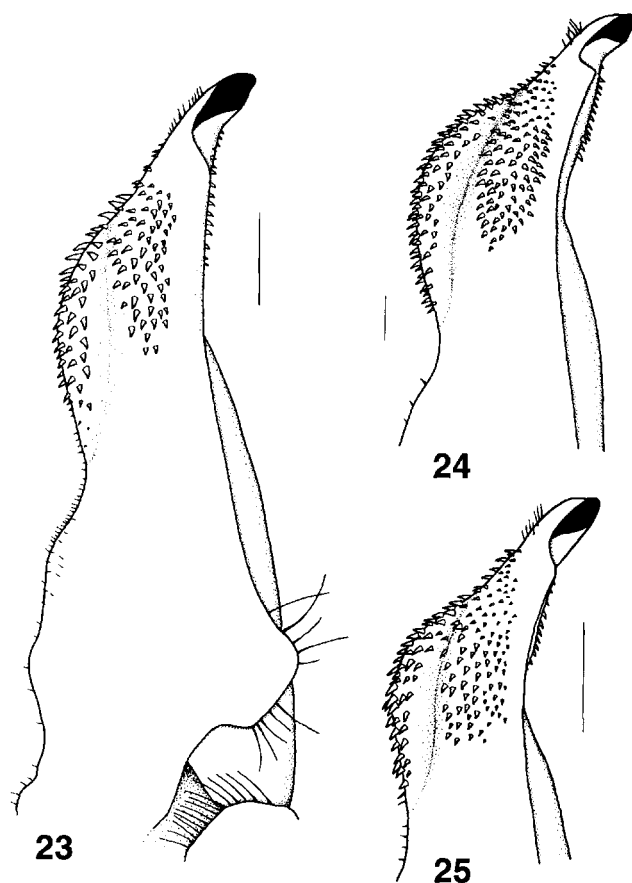


Fig. 11. *Sylviocarcinus devillei* (holotype of *Trichodactylus (Valdivia) peruvianus* A. MILNE-EDWARDS 1869 MNHN 4048), dorsal and ventral aspect, detail of front (Photo J. REBIÈRE).





Figs. 13–22. *Sylviocarcinus devillei*, variability of carapace contours (13–17) and frontal borders (18–22). — 13) INPA-Cr 527; 14) MZUSP 2409; 15) MZUSP 6336; 16–17) Paratypes of *Sylviocarcinus gigas* SMALLEY & RODRIGUEZ 1972, USNM 139121. — Scales 13–17, 22: 1 mm, 18–21: 5 mm.



Figs. 23–25. *Sylviocarcinus devillei*, right male plp 1. — 23) SMF 12705; 24) holotype of *Sylviocarcinus gigas* SMALLEY & RODRIGUEZ 1972, USNM 139120; 25) holotype of *Dilocarcinus margaritifrons* ORTMANN 1893, MZVS. — Scales 1 mm.

2 ♂ (USNM 231583), idem, leg. A. SUAMAT; 1 ♀ (USNM 231791), 1 ♀ (USNM 231789), 1 ♂ 1 ♀ (USNM 231588), idem; 31.I.1980, leg. R. MC DIORMID; 1 ♀, broken (USNM 231589), idem, 1.II.1980, leg. R. MC DIORMID; 4 ♂ 6 ♀ (USNM 228882), idem, 15.II.1980, leg. R. MC DIORMID; 1 ♂ 2 ♀ (USNM 231849), Rio Cenepa, San Antonio, 25.VIII.1977, leg. R. MC DIORMID; 1 ♀ (USNM 231596), idem, 10.VII.1977, leg. R. MC DIORMID; 1 ♀ (USNM 228883), idem, 21.VIII.1977, leg. R. MC DIORMID; 2 ♀ (USNM 231810), Rio Cenepa, near Huampami, 21.VII.1977, leg. R. MC DIORMID; 1 ♂ 1 ♀ (USNM 231573), Rio Cenepa, 10.VII.1977, leg. R. MC DIORMID. — Depto Loreto: 1 ♂ [42.9:40.5], holotype of *Dilocarcinus margaritifrons* ORTMANN (MZVS), Rio Ucayalli, 1874, REISS; 2 ♂ 3 ♀ (USU 415), Rio Napo, VI. 1993, leg. PANTOJA. — Depto San Martin: 1 ♂, dry (NNHM), Puerto Huicte, near Uchiza, Rio Huallaga, VIII.1948, leg. J. O. DE LA PUENTE. — Depto Junín: 1 ♀ (USNM 184267), Pacific Ocean, Otica/Tambo [= Rio Otica/Rio Tambo, upper Rio Ucayalli], 27.X.1977, leg. G. WEISS. — Depto Madre de Dios: 1 ♂ (NHMW

4183), Puerto Maldonado, Laguna Valencia, 7.XI.1972, leg. E. M. DEL SOLAR.

Without precise locality: 1 spec., dry, holotype of *Dilocarcinus spinifrons* KINGSLEY (ANSP 3096), upper Amazon, ? Brasil.

Diagnosis: Frontal margin distinctly pearly or spined, sometimes indistinct in large specimens. Antero-lateral borders with four or less teeth behind the external orbital tooth, these being usually triangular but acute, at times fading away in large specimens. Abdominal segments III–V fused. Male plp 1 with a strong subdistal lobe, subterminal spine field well developed and separated into three longitudinal patches at its basal two thirds, confluent towards tip. Displacement of the suture towards the dorsal side quite distinct.

Measurements: 37.2 : 32 : 17.5 : 12 (holotype ♀)

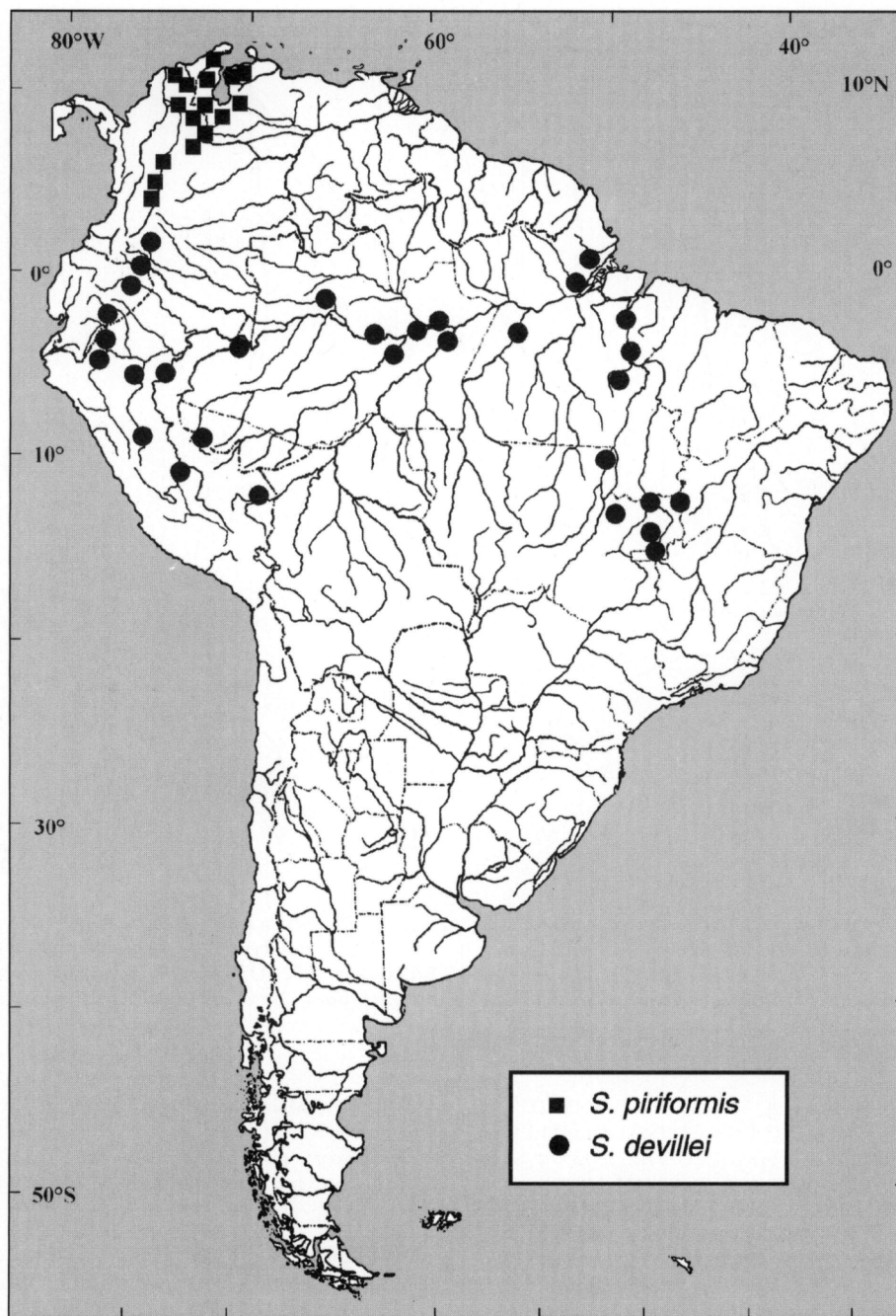


Fig. 26. Distribution map of *Sylviocarcinus devillei* and *S. piriformis*.

Type locality: Brazil, Estado de Goiás, Salinas. [According to sheet S.D-22 of the "Map of Hispanic America" published by the American Geographical Society of New York at the scale of 1: 1000000 in 1935, Salinas probably was a group of huts, located at 13°38'S 50°30'W. The location and period agrees well with the

itinerary of FRANCIS DE CASTELNAU's expedition (see PAPAVERO 1971).]

Distribution: Whole Amazon system. Known from Brazil, Peru, Ecuador and Colombia.

Remarks: *S. devillei* was a problematical species because no male specimens were known and only females

were available for study¹⁾. This species appears difficult to collect, as it lives in permanently submerged habitats. Males were collected in a drained river bed downstream of the Rio Tukurui dam. Further collections were made by one of us (C. M.) by setting traps at the banks of the Amazon river near Manaus and this proved successful. A large collection of material from Peru was later discovered in the USNM under the name *S. gigas* and after examination proved to be *S. devillei*. Unfortunately there is no information about the collecting methods and ecology of *S. gigas*.

There have been uncertainties concerning the number of species in the group related to *S. devillei*. *Sylviocarcinus devillei* s. l. is characterised by the strong subdistal lobe of the male plp 1 and the pearled or spined frontal margin. BOTT (1969) regarded *S. peruvianus* A. MILNE-EDWARDS 1869 as a junior synonym of *S. devillei*. PRETZMANN & MAYTA (1980), PRETZMANN (1983), however, assigned *S. peruvianus* to *Holthuisia*, and stated that the front was always spined in this species compared with the pearled front in *S. devillei*. *Dilocarcinus margaritifrons* ORTMANN 1893 was considered by PRETZMANN & MAYTA (1980: 5) as a subspecies of *H. peruvianus*, but later (1983: 323) he synonymised it with *H. peruvianus*. BOTT (1969) had synonymised ORTMANN's species with *S. pictus* (H. MILNE-EDWARDS 1853). Another species in this group was described by SMALLEY & RODRIGUEZ (1972) from the Amazon drainage of Colombia, under the name *S. gigas*. RODRIGUEZ (1992) synonymized all these nominal species discussing their identity on the basis of the literature. In this connection it is interesting to know that the holotype of *S. gigas* is no longer the largest specimen known as stated by RODRIGUEZ (1992). One of the males from the Estado do Amapá (INPA-CR 652) has a carapace-breadth of 101.9 mm and a carapace-length of 91.8 mm and by this is the largest trichodactylid now known.

For our revision all available material of this complex group was reexamined together with a large number of specimens recently collected (see material list for details). The form of the male plp 1 varied, which at first indicated two species or subspecies. The specimens collected near the mouth of the Amazon had an almost straight plp 1 with a less developed subdistal lobe. The second group, including the types of *S. margaritifrons* and *S. gigas* had a pleopod that was distally bent and had a strong subdistal lobe. Extensive examination of the material revealed specimens displaying intergrading characters, and those were not only from the Central Amazon, which could have suggested subspecific differentiation. Even in the upper Amazon of Peru and the upper Rio Tocantins (State of Goiás) we found a much greater variability than expected. One male from Peru preserved at the USNM (Cat. No.

231849) has a pleopod very near to the males from the Amazon mouth. Greater variability was also observed in the armature of the frontal margin (granules or spines), including long granules and short spines, as well as the dentition of the anterolateral borders (teeth fading away at very different sizes). In conclusion the whole Amazon basin is populated by one variable species, the name of which is *S. devillei* as it is the oldest available one. For those preferring to separate two species, notwithstanding the problems discussed above, the second available and oldest name is *S. margaritifrons*.

Sylviocarcinus maldonadoensis (PRETZMANN 1978)

(Figs. 27–32, 49)

- ♀ 1904 *Trichodactylus* (*Dilocarcinus*) *gurupensis* RATHBUN, Nouv. Arch. Mus. Hist. nat., (4)6: 242. [Nomen nudum.]
- ♀ 1905 *Trichodactylus* (*Dilocarcinus*) *gurupensis* RATHBUN, Nouv. Arch. Mus. Hist. nat., (4)7: pl. 18 fig. 7.
- ♀ 1906 *Trichodactylus* (*Dilocarcinus*) *gurupensis*, — RATHBUN, Nouv. Arch. Mus. Hist. nat., (4)8: 64.
- 1969 *Sylviocarcinus devillei*, — BOTT, Abh. senckenb. naturf. Ges., 518: 28. [part.]
- 1978 *Holthuisia picta maldonadoensis* PRETZMANN, Sitz.-Ber. österr. Akad. Wiss. math. naturw. Kl., (1) 187(6–10): 169, Abb. 12.
- 1983 *Holthuisia picta maldonadoensis*, — PRETZMANN, Ann. naturhist. Mus. Wien, 84(B): 322, pl. 3, fig. 6–8.
- 1992 *Sylviocarcinus maldonadoensis*, — RODRIGUEZ, Faune tropicale, 31: 74, figs. 4I, 7B, 9D, 26A–F.

Holotype: 1 ♂ (NHMW 4179), Peru: Depto. Madre de Dios: Puerto Maldonado, 1972, leg. E. M. DEL SOLAR.

Paratype: 1 ♀ (NHMW 4180), Peru: Depto. Madre de Dios: Puerto Maldonado, Laguna Valencia, 7.XI.1972, leg. E. M. DEL SOLAR.

Material: Brazil: Estado do Amazonas: 5 ♂ 1 ♀ (INPA-CR 140), 2 ♂ 1 ♀ (SMF 18709), Paraná do Castanho, Lago Amanã, Rio Japurá, X.1983, leg. R. BEST; 1 ♂ (MZUSP 4763), Paraná do Urariá, near Parintins, 24.II.1972, leg. P. VANZOLINI; 5 ♂ 3 ♀ (INPA-CR 497), Rio Amazonas, Ilha do Careiro, near Manaus, 4.–20. IX.1986, leg. O. COLLART; 3 ♂ (INPA-CR 499), idem, 12.VII.1986, leg. C. MAGALHÃES; 1 ♂ (MZUSP 9105), idem, 26.V.1986, leg. N. AGUIAR; 1 ♀ (SMF 18708), Lago de Manacapuru, leg. W. EHRHARDT; 2 ♀ (NHML 1977: 469), Rio Solimões, 40 miles from Manaus, XII.1976, R.V. "ALPHA HELIX"; 2 ♂ (AMNH), Rio Purús, 1934, leg. B. A. KRUKOFF; 1 ♀ (MNRJ MD-1264), Rio Javari, Benjamin Constant, leg. PARKO. — Estado do Pará: 1 ♀ (UFPE), Rio Amazonas, Ilha Meruim, in front of the mouth of the Rio Jari, 7.II.1980; 1 ♀ (MZUSP 1655), Santarém, 1921, leg. E. GARBE; 1 ♂ (INPA-CR 498), Rio Tocantins, Cametá, 22.IV.1986, leg. O. COLLART.

Peru: Depto. Loreto: 1 ♀ (NHMW 6667), Rio Ucayali, 1979, leg. J. BRAICH.

¹⁾ With reference to our new taxonomic findings and because the collecting dates are not identical, SMF 4334 was divided and registered accordingly.

SMF 4334 *S. devillei*, 3 ♀, Brazil, Estado do Amazonas, Manacapurú, abt. 100 km upstream Manaus, 9. VIII. 1924, leg. W. EHRHARDT.

SMF 18705 *S. devillei*, 1 ♀, same loc. and coll., 8.VIII.1924.

SMF 18708 *S. maldonadoensis*, 1 ♀, same loc. and coll., no date.

SMF 18706 *S. pictus*, 1 juv. ♂, same loc. and coll., 10.VIII.1924.

SMF 18707 *S. pictus*, 1 ♂, data as in 18705.



Fig. 27. *Sylviocarcinus maldonadoensis* (holotype, NHMW 4179), dorsal and ventral aspect.
— Scale 10 mm.

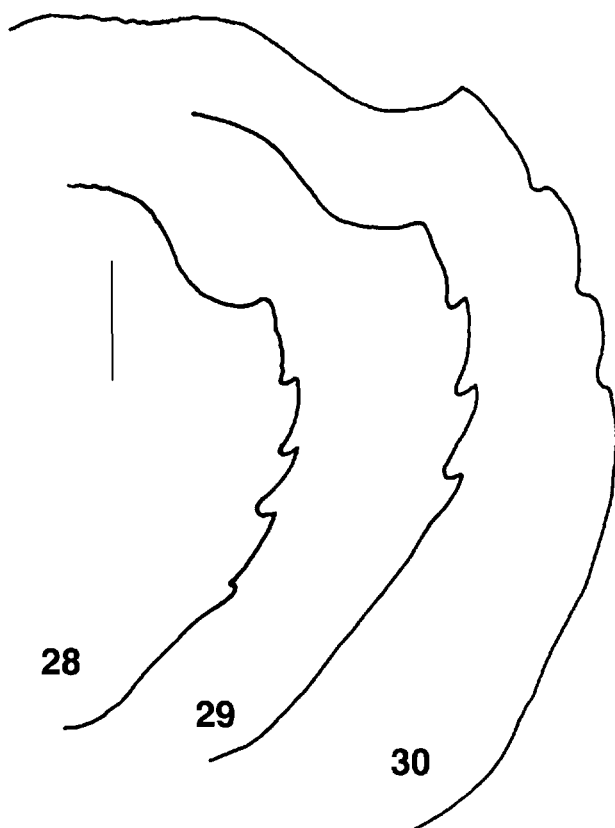
Diagnosis: Three or four anterolateral teeth behind the exorbital tooth of carapace. Abdomen with segments III–V fused. Male plp 1 without a subdistal lobe, subterminal spine fields confluent forming a very well developed area covering nearly the whole distal half of the appendage.

Description: Carapace smooth and glabrous; postfrontal lobes visible as a single convex protuberance, H-shaped central groove (consisting of the posterior and lateral borders of the gastral and the lateral borders of the cardiac region) fairly well developed, shallower in larger specimens, here the central part being especially weaker. Frontal margin smooth and nearly straight, central emargination hardly visible. Exorbital tooth broadly triangular, anterolateral borders with three or four teeth behind it. Not only the number but also the shape of the anterolateral teeth is variable, while in younger specimens they are more or less spine tipped, they get lower and more triangular in larger ones, also the fourth fades away completely. Suborbital border smooth, bearing only one tooth at the inner corner. This tooth is longer and more evident in younger specimens than in older ones. Anterolateral corner of buccal cavity rounded, not bearing any spines.

Merus of the third maxilliped triangular, fronto-external corner with a curved tooth, being more or less acute, outer border of this tooth separated by a very shallow furrow from the remaining plate. Ischium slender, longitudinal furrow very shallow, hardly visible. Exopodite with a well developed flagellum.

First pereiopod markedly heterochelous at least in males, the right chela being larger than the left one. Merus triangular in cross-section, all borders smooth in larger specimens. In smaller ones the anterior border has a median very low protuberance and the posterior border a subdistal spine. Carpus smooth, inner corner with a short spine in small specimens, a rather rounded triangle in larger ones. Palm smooth. Dentition of the fingers saw-shaped in the smaller cheliped, more molarlike in the larger one. This one also has a distinct cleft.

Second to fifth pereiopods smooth. Propodi of the second to fourth legs with broadly longitudinal hair tufts on their lower borders and two slender and parallel ones on the upper; the tuft on the lower border is longest in the second pereiopod where it occupies nearly the whole length, in the third the distal two thirds, and in the fourth



Figs. 28–30. *Sylviocarcinus maldonadoensis*, variability of carapace contours. — 28) INPA-CR 497; 29) INPA-CR 499; 30) INPA-CR 140. — Scale 5 mm.

only less than the distal half. The dactyli of the corresponding limbs have three longitudinal tufts, one on the lower and two on the upper border. In the fifth pereiopod the propodus and dactylus are strongly flattened and their contour is broadened by hair rows more strongly developed on the lower than on the upper borders, thus these limbs can be called natatorial.

Frontal part of proepistome (interantennular septum) relatively narrow, rounded in front, its surface smooth. The surface of the epistome is smooth; anterior border of the buccal cavity with a distinct m-shaped crest, the middle part of the "m" being inconspicuously bifid.

Sternal plate relatively long and narrow, totally covered by the abdomen at its base. Furrows between somites IV/V and VI/VII nearly reaching the midline, the ones between somites V/VI and VII/VIII very short, ending less than halfway between the beginning of the sterno-abdominal cavity and the midline; median line only present in somites VII–VIII.

Abdomen with segments III–V fused, area of IIIrd–IVth segments with a pair of strong knobs in large males, in smaller ones these structures are less evident.

Male plp 1 with a median constriction in its stem, from there tapering regularly to tip, thus, lacking a subdistal lobe. Subterminal spine fields confluent, the well developed spines occupy nearly the whole distal half of the ap-

pendage. Suture begins at the mesial side and is strongly displaced to the dorsal, after half length of the pleopod, it is torded back again near to the tip where it meets the terminally situated distal opening.

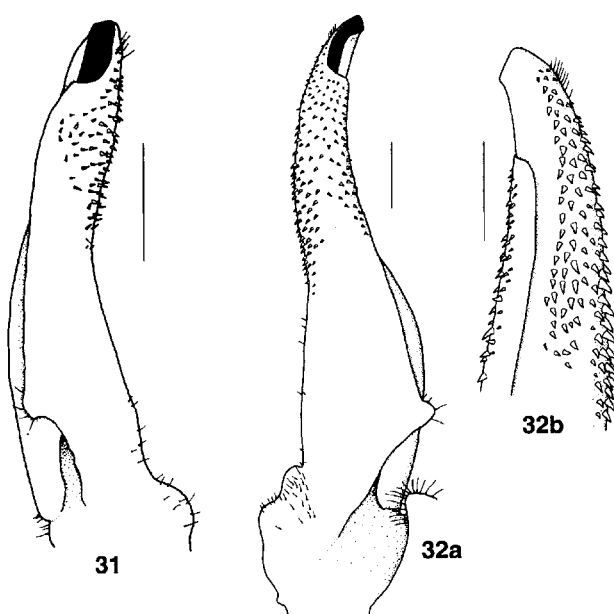
Measurements: 21.2 : 18.9 : 9.8 : 7.2 (holotype ♂)

Type locality: Peru, Depto. Madre de Dios, Puerto Maldonado [12°36'S 69°11'W] at the mouth of Rio Tambopata.

Distribution: Whole stretch of the Amazon from Peru up to the mouth, northern and southern distribution limits unknown.

Remarks: The plp 1 of *Sylviocarcinus maldonadoensis* is distinctive, the subdistal lobe is absent and the appendage looks cylindrical. These characters are unique within *Sylviocarcinus*, so adult males of this species are easily identified. Other morphological characters were inconsistent, however the following may assist in separating females of *S. maldonadoensis* from other species of the genus. In *S. maldonadoensis* there is no trace of granules or spines at the frontal margin, while in *S. devillei* such an armation can be found in nearly all specimens [in very large ones the frontal granules can fade away to a certain extent, but remain always indicated]. Separating *S. piriformis* and *S. maldonadoensis* can only be accomplished by examining the male pleopods, but geographical distribution of these two species is different. The former is found in the Maracaibo basin and Rio Magdalena drainage system, while the latter is located in the Amazon system.

The holotype of *S. maldonadoensis* is an immature male, the pleopod is thus not developed in a totally typical way. The same applies to the specimen described and figured by RODRIGUEZ (1992). This mainly applies to the strength of the subterminal spine fields, but the characteristic cylindrical shape is present.



Figs. 31–32. *Sylviocarcinus maldonadoensis*, male plp 1. — 31) Holotype, NHMW 4179, left limb; 32a) adult specimen, MZUSP 4763, total right limb, ventro-mesial aspect; 32b) id., tip, dorso-lateral aspect. — Scales 1 mm.

A problem which might make it necessary to change the name of the present species in future is the identity of *Trichodactylus* (*Dilocarcinus*) *gurupensis* RATHBUN 1905. The holotype [♀ (23.8: ?) (MCZ 4950), Brazil: Estado do Pará: Rio Amazonas, Gurupá, 22.VIII.1865, leg. L. AGASSIZ] is in bad condition. Part of the front is broken, but the remaining part does not show any trace of tubercles or spines. Otherwise the carapace and the front are quite similar to *S. maldonadoensis*. In spite of the apparent similarity the identity of both species is not certain, as the male pleopod is not known in *S. gurupensis*. We prefer, therefore, to use *S. maldonadoensis* as name for the present species until an abundant topotypical material of *S.*

gurupensis can be examined and the identity of that species be determined with certainty.

Sylviocarcinus maldonadoensis has a wide geographical range. As large areas in the northern parts of the Amazon drainage system have yet to be explored, the full range of this species is unknown.

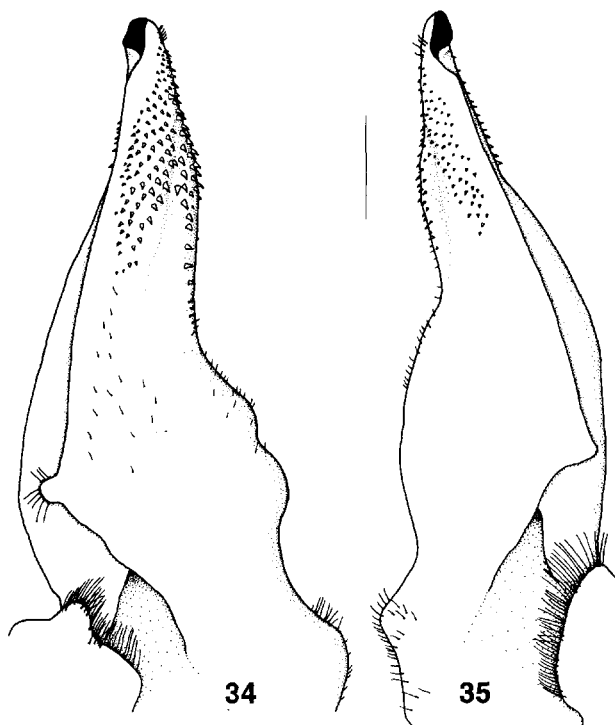
Sylviocarcinus piriformis (PRETZMANN 1968)

(Figs. 26, 33–35)

1968 *Valdivia* (*Valdivia*) *piriformis* PRETZMANN, Entom. Nachrbl., 15(7/8): 73.



Fig. 33. *Sylviocarcinus piriformis* (holotype of *Valdivia* (*Valdivia*) *torresi* PRETZMANN 1968, NRMSt ex 8822), dorsal and ventral aspect. — Scale 20 mm.



Figs. 34–35. *Sylviocarcinus piriformis*, male plp 1. — 34) holotype of *Valdivia (Valdivia) torresi* PRETZMANN 1968, NRMSt ex 8822, left limb; 35) SMF 22238, right limb. — Scale 1 mm.

- 1968 *Valdivia (Valdivia) torresi* PRETZMANN, Entom. Nachrbl., 15(7/8): 72.
 1969 *Valdivia (Valdivia) piriformis*, — BOTT, Abh. senckenb. naturf. Ges., 518: 38.
 1969 *Valdivia (Valdivia) torresi*, — BOTT, Abh. senckenb. naturf. Ges., 518: 38.
 1969 *Valdivia (Valdivia) piriformis*, — SCHMITT, Proc. biol. Soc. Washington, 82: 98, figs. 3a–i.
 1972 *Sylviocarcinus torresi*, — SMALLEY & RODRIGUEZ, Tulane Stud. Zool. Bot., 17(3–4): 44, figs. 3–4.
 1972 *Sylviocarcinus piriformis*, — SMALLEY & RODRIGUEZ, Tulane Stud. Zool. Bot., 17(3–4): 45, fig. 5.
 1980 *Sylviocarcinus piriformis*, — RODRIGUEZ, Crust. Decap. Venezuela: 340, fig. 97.
 1981 *Sylviocarcinus torresi*, — RODRIGUEZ, Aquat. Biota trop. South Amer., 1: 48.
 1981 *Sylviocarcinus piriformis*, — RODRIGUEZ, Aquat. Biota trop. South Amer., 1: 48.
 1982 *Sylviocarcinus piriformis*, — VON PRAHL, Actual. Biol., 11(39): 23, figs. 1–2.
 1982 *Sylviocarcinus torresi*, — VON PRAHL, Actual. Biol., 11(39): 24.
 1985 *Sylviocarcinus piriformis*, — CAMPOS, Caldasia, 14(67): 271.
 1985 *Sylviocarcinus torresi*, — CAMPOS, Caldasia, 14(67): 271.
 1988 *Sylviocarcinus piriformis*, — VON PRAHL, Bol. Ecotropica, 18: 13, figs. 9–10.
 1992 *Sylviocarcinus piriformis*, — RODRIGUEZ, Faune tropicale, 31: 80, figs. 3I, 4K, M, 5B, 7A, C, 9C, G, 13B, 15D, 28A–G, 29A–F.

Material: Venezuela: Estado Zulia: 1 ♀ (USNM 234444), Ciénaga del Guanavara (swamp), 10 km N of Sinamaica, 11.III.1942, leg. L. SCHULTZ; 1 ♀ (USNM 234442), Rio Socuy, 3 km above mouth, Maracaibo basin, 24.II.1942, leg. L. SCHULTZ; 1 ♀ 1 ♂ (USNM 184126), Distrito Perija, Rio Tatayonto, Mun.

Liberdad, 28.V.1974, leg. D. C. TAPHORN; 1 ♀ 1 ♂ (USNM 234445), Rio San Juan, trib. Rio Motatán, Maracaibo basin, 20.III.1942, leg. L. SCHULTZ; 1 ♂ (USNM 234443), Rio Apón, 35 km S of Rosario, Maracaibo basin, 26.II.1942, leg. L. SCHULTZ. — Estado Mérida: 1 ♀ (USNM 184125), Distrito Tovar, Caño Guaruri, Mun. Alberto Adriani, 16.IX.1974, leg. D. C. TAPHORN.

Colombia: Depto. Magdalena: 1 ♂ (USNM 68563), Rio Magdalena, 200–300 miles up, leg. C. EIGENMANN, 1 ♀ (INPA-CR 648), Rio Aracataga; 1 ♂ (SMF 22231), Rio Frio; 4 ♂ (SMF 22232), Rio Piedras, Santa Marta, 22.VII.1990; 3 ♂ (SMF 22233), Santa Rosalia; 1 ♂ (INPA-CR 649), idem; 2 ♀ (SMF 22234), Rio Sevilla; 1 ♀ 1 ♂ (SMF 22241), idem.; 1 ♂ (SMF 22235), Rio Frio; 2 ♀ (SMF 22236), idem. — Depto. Cesar: 1 ♀ (SMF 22237), Aguachica; 1 ♀ 1 ♂ (SMF 22240), San Antonio, Caño de San Antonio. — Depto. Norte de Santander: 2 ♀ (SMF 22238), 2 ♀ 1 ♂ (SMF 22239), Quebrada de los Venados, tributary of Rio San Miguel, Hacienda Macarena, Mun. de Zulia, 3.VIII.1980, leg. H. VON PRAHL; 1 ♂ (NHMB 767a), Cúcuta. — Depto. Bolívar: 1 ♀ (56.7:53.9), holotype of *Valdivia (Valdivia) torresi* PRETZMANN (NRMSt ex-8822), La Regla [? Caño La Regla, 08°57'N 74°03'W], leg. DAHL.

Diagnosis: Frontal margin unarmed. Anterolateral borders with four triangular teeth behind the external orbital one, last much smaller than the others. Abdominal segments III–V fused. Male plp 1 with a very faint subdistal lobe, subterminal spine fields spread over the distal third of the appendage, well separated in a distoproximal direction.

Measurements: 56.7 : 53.9 : 28.0 : 19.5. (♂ holotype of *V. (V.) torresi* PRETZMANN).

Type locality: Colombia, Depto. Norte de Santander: Cúcuta.

Distribution: Colombia: Magdalena and Maracaibo basins; Venezuela: Maracaibo basin.

Remarks: *Sylviocarcinus piriformis* and *S. torresi* were considered as separate species until recently. After examination of Colombian specimens from the Rio Magdalena basin, VON PRAHL (1982) doubted the separability of the two species because of the variability of the male pleopod. Further work on more material from both typical localities convinced VON PRAHL (1988) that there was only one species and he nominally fixed the species name as *S. piriformis*. Thus, as the first revising author he gave *S. piriformis* relative priority over *S. torresi*, so that the first name has to be used by all authors agreeing to the synonymy. This study agrees with the conclusions of VON PRAHL, which were followed by RODRIGUEZ (1992).

Sylviocarcinus australis n. sp.

(Figs. 36–38)

- 1898 *Orthostoma pictum*, — NOBILI, Ann. Mus. civ. Stor. nat. Genova, (2)19: 11 [part.: specimens from Candelaria (Misiones)].
 ? 1906 *Trichodactylus (Dilocarcinus) pictus*, — RATHBUN, Nouv. Arch. Mus. Hist. nat., (4)8: 62 [part.: perhaps Paraguayan ♀].
 1912 *Trichodactylus (Dilocarcinus) pictus*, — MOREIRA, Mem. Soc. zool. France, 24: 150 [non *Dilocarcinus pictus* H. MILNE-EDWARDS 1853].
 1913 *Trichodactylus (Dilocarcinus) pictus*, — MOREIRA, Publ. Cons. nac. Prot. Indios, 13(Annexo 5): 1–21, pls. 1–7 [non *Dilocarcinus pictus* H. MILNE-EDWARDS 1853].
 1949 *Trichodactylus (Dilocarcinus) pictus*, — RINGUELET, Notas Mus. La Plata, 16(Zool. 119): 102, pl. 7 [non *Dilocarcinus pictus* H. MILNE-EDWARDS 1853].

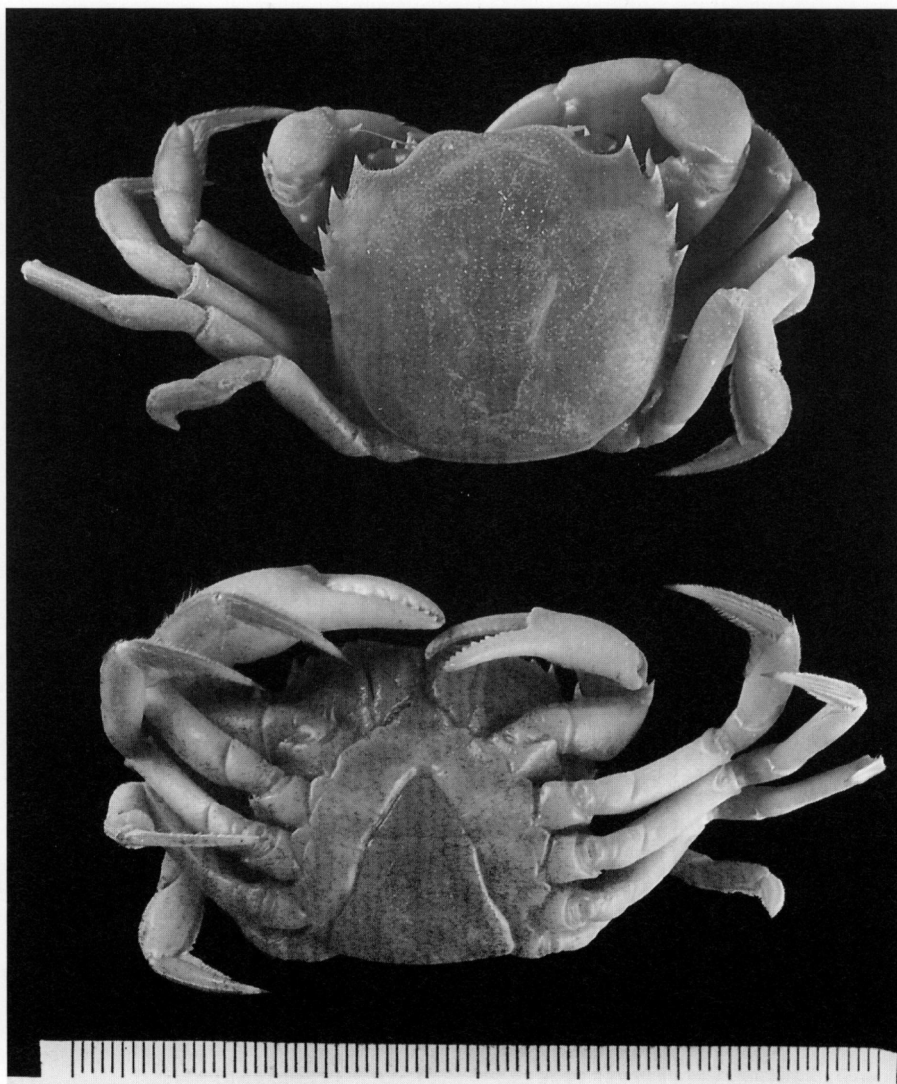


Fig. 36. *Sylviocarcinus australis* (holotype, SMF 4886), dorsal and ventral aspect.

1969 *Sylviocarcinus pictus pictus*, — BOTT, Abh. senckenb. naturf. Ges., 518: 31, pl. 21 fig. 53 [part. of text and pl. 21 fig. 53; nec pl. 12 fig. 22 = *S. pictus*.]

1990 *Sylviocarcinus pictus pictus*, — ZWINCK, Fauna de Crustáceos: 103.

1992 *Sylviocarcinus pictus*, — RODRIGUEZ, Faune tropicale, 31: 76 [part.: specimens from Paraguay].

Holotype: ♀ (SMF 4886), Paraguay, Rio Paraguay, near Puerto Max, 9. III. 1905, leg. L. DESARTS.

Paratypes: Brazil: Estado do Mato Grosso: 2 ♀ (MNRJ MD-810), Rio Manso, mun. Chapada dos Guimarães, 11.–13.VII.1983, leg. W. ZWINCK et al.; 9 ♀ 5 ♂ (MNRJ MD-804), Rio Cuiabá, Acorizal, 22.VII.1983, leg. W. ZWINCK et al.; 1 ♀ 2 ♂ (MZUSP 6301), Porto Espiridião, 25.XII.1976, leg. P. VANZOLINI; 7 ♀ 10 ♂ (MZUSP 2561), São Luís de Cáceres, XI.1917, leg. E. GARBE; 1 ♀ (SMF 18712), Rio Jaurú, 40 km W of Cáceres, 6.IX.1980, leg. J. VOELKER; 3 ♀ 1 ♂ (INPA-CR 362), 1 ♀ 1 ♂ (MZUSP 9104), Transpantaneira road, Km 59, Poconé, 23.VI.1985, leg. V. A. ARAÚJO; 2 ♂ (MZUSP 9505), idem, 27.VI.1985, leg. V. A. ARAÚJO; 6 ♂ 11 ♀ (MNRJ MD-1244), Córrego Boca Rica, Quatro Marcos, 29.XI.1984, leg. W. ZWINCK. — Estado do Mato

Grosso do Sul: 1 ♂ 4 ♀ (MNRJ MD-1387), Rio Miranda, Salobra, 22.–25.I.1955, leg. L. TRAVASSOS e colab. — Paraguay: 1 ♂ 1 ♀ (SMF 18711), 3 ♂ 1 ♀ (ZMH K-3627), Rio Paraguay, near Puerto Max, 9. III. 1905, leg. L. DESARTS.

Material: Brazil: Estado de Rondônia: 5 ♂ 4 ♀ (MNRJ MD-1239), Rio São Domingos ou Romari, tributary of Rio Jarú, rod. BR-470, Km 45, Ouro Preto do Oeste, leg. A. D. CERATTI. — Estado do Mato Grosso: 1 ♀, dry (NHMW 1475), Rio Paraguay; 2 ♂ (MNRJ MD-809), Rio Manso, Distr. Praia Rica, Chapada dos Guimarães, 11.–13.VII.1983, leg. W. ZWINCK e colab.; 1 ♂ 2 ♀ (MNRJ MD-1235), Rio Vermelho, Mun. Rio Branco, 28.XI.1984, leg. W. ZWINCK; 1 ♂ 1 ♀ (MNRJ MD-1237), Córrego do Ribeirão, Distr. Porto Estrela, Barra do Bugres, 4.XII.1984, leg. W. ZWINCK; 1 ♀ (MNRJ MD-803), Rio Cuiabá, Acorizal, 22.VII.1983, leg. W. ZWINCK et al.; 1 ♂ (MNRJ MD-802), Ribeirão Baús, estrada Baús-Guia, between Acorizal and Cuiabá, 27.VII.1983, leg. W. ZWINCK e colab.; 1 ♂ (MNRJ MD-811), 3 ♂ 3 ♀ (MNRJ MD-812), Rio Taquará, Cuiabá, 27.VII.1983, leg. W. ZWINCK e colab.; 1 ♂ (MNRJ MD-808), 1 ♂ 1 ♀ (MNRJ MD-807), Rio dos Peixes, Cuiabá, 25.VII.1983, leg. W. ZWINCK e colab.; 1 ♀ with young (MNRJ MD-1230), 1 ♀ (MNRJ MD-1238), 2 ♂ 1 ♀ (MNRJ MD-1240), 1 ♀ with young (MNRJ MD-1242), Córrego

Boca Rica, Quatro Marcos, 29.XI.1984, leg. W. ZWINK; 1 ♂ (MZUSP 9666), Dom Aquino, VI.1987, leg. DALA; 1 ♀ (MNRJ MD-1232), Córrego afluente do Rio Jaurú, Porto Esperidião, 25.XI.1984, leg. W. ZWINK; 2 ♀ (SMF 9423), Cáceres, I.IX.1980, leg. J. VOELKER; 1 ♀ (MNRJ MD-1233), Córrego Sangradourozinho, Cáceres, 3.XII.1984, leg. W. ZWINK; 8 ♂ 5 ♀ (MNRJ MD-1243), Branch of Rio Paraguay, Km 3 da BR-174, Street from Porto Esperidião to Cáceres, 1.XII.1984, leg. W. ZWINK; 1 ♂ 1 ♀ (NNHM D-37344), Cáceres, XI.1917, leg. E. GARBE; 1 ♂ (INPA-CR 361), Rod. Transpantaneira, Km 59, 7.II.1986, leg. V.A. ARAÚJO & C. MAGALHÃES. — Estado do Mato Grosso do Sul: 1 ♂ (MNRJ MD-1255), Rio Coxim, Com. Rondon; 4 ♂ 2 ♀ (MZUSP 9888), Rio Miranda, Base de Pesquisas do Pantanal da UFMS, 4.VIII.1989, leg. A. C. MARINI; 1 ♂ (MNRJ MD-1096), Rio Miranda, Corumbá, 14.IX.1987, leg. L. REIS; 1 ♂ (MZUSP 7051), Miranda, 8.-12.XI.1981, Eq. DCB/UFSCar; 2 ♀ (MZUSP 9947), Morro do Azeite, Miranda, Bodoquena, 24.XI.1989, leg. V. GARRUTI; 1 ♀ (NHML 1892.4.19.1), Rio Paraguay, near Corumbá, I.1892, leg. S. MOORE; 3 ♂ 2 ♀ (MNRJ MD-801), Rio Urubeba, tributary of Rio Nioaque, Nioaque, 10.-19.XI.1983, leg. W. ZWINK.

Paraguay: 1 ♀, dry (USNM 2470), leg. PAGE; 1 ♀ (NHML 1985-250), 1929; 1 ♂ (ZMB 15543), 11.XI.1908, leg. ANISITS; 1 ♂ (NHML 1956.6.10.10), Rio Tapiracuay, Primavera, Alto Paraguay, leg. E. J. PHILLIPS; 2 ♂ (ZSM 1905-1), Rio Paraguay, between Puerto Sastre and Puerto Casado, leg. KRIEG; 1 ♂ 2 ♀ (MLP ex-116), Villarica.

Argentina: Prov. Misiones: 1 ♂ (MNHN BP-332), Banks of the Parana, Villa Lutecia, San Ignacio, 1910, leg. E. WAGNER; 1 ♀ (MNHN B-17668), idem, Ceyu-Cuare, 1910, leg. E. WAGNER; 1 ♂ (MCSNG), Candelaria, Spediz. BOVE.

No locality indication: 1 ♂ (NHMW 6657), 25.X.1958, leg. G. SPATS.

Diagnosis: Three to four spine-tipped anterolateral teeth behind the exorbital tooth of the carapace. Abdomen with segments III-VI fused. Subterminal spine-field of male plp 1 partly situated on a poorly developed subdistal lobe, median part of the subterminal spine field very poorly developed.

Description: Carapace smooth and glabrous, showing a pattern of small reddish dots or broader circular spots; postfrontal lobes visible as a single convex protuberance, H-shaped central groove (consisting of the posterior and lateral borders of the gastrical and the lateral borders of the cardiacal region) fairly well developed, in larger specimens the central part fades away. Frontal margin smooth, slightly concave, there is some variability concerning the depth of the median cleft. Exorbital tooth slender and spine-tipped, anterolateral borders with three and four teeth behind it. The number of the anterolateral teeth is evidently variable, as the holotype has three on both sides while the female paratype from the same locality (SMF 18711) has four. In other samples the variability is demonstrated more strongly: the male paratype (MZUSP 4785) has four teeth on the left and three plus an inconspicuous knob on the right side, the same being even more evident in another female paratype (SMF 9423). Suborbital borders with at least two slender spines, one of which is always situated at the inner corner. Anterolateral corner of the buccal cavity with two strongly developed spines.

Merus of third maxilliped triangular, fronto-external corner with a curved tooth, being more or less acute, outer border of this tooth separated by a furrow from the remaining plate. Ischium slender, with a longitudinal furrow near to its inner border. Exopodite with a well developed flagellum.

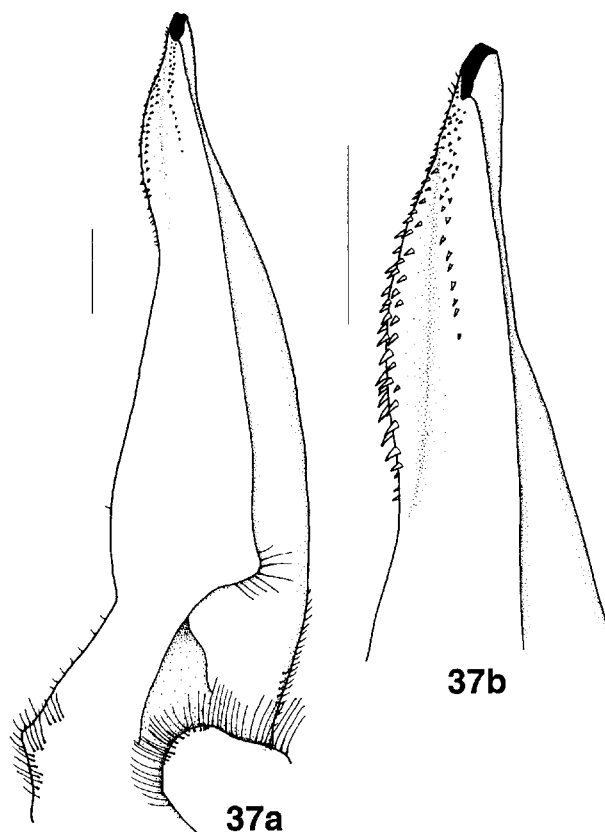


Fig. 37. *Sylviocarcinus australis* (holotype, SMF 4886), right male plp 1, ventro-mesial aspect. — a) Total limb; b) distal end. — Scale 1 mm.

First pereiopod markedly heterochelous in both sexes, the right chela being larger than the left one. Merus triangular in cross-section; anterior border in smaller specimens with a very acute and curved spine at its middle, otherwise smooth, this spine fades away in larger animals; posterior border smooth and with a subterminal acute spine, which becomes a little smaller in larger specimens; lower border sometimes with an acute median spine and a supplementary granule, this character being extremely variable as shown by specimens having the spine on one side only. Carpus smooth, inner corner with a long and acute spine. Palm smooth, in some cases (e.g. in the holotype) the one of the smaller cheliped bears a terminal spine. Dentition of the fingers saw-shaped with alternating large and small teeth, in larger specimens the larger cheliped shows a cleft between the fingers, which, however, remains quite shallow.

Second to fifth pereiopods smooth. Propodus of second leg with a broadly longitudinal hairtuft on its lower border, and two slender and parallel ones on the upper; dactylus with three such slender longitudinal tufts, one at its lower and two at its upper border. In the following two legs the tufts on the propodi are much less developed and disappear in some cases; the corresponding dactyli have the hair tufts basically as described for the second pereiopod, but usually less developed. In the fifth pereiopod the propodus and dactylus are flattened and their contour is broadened by

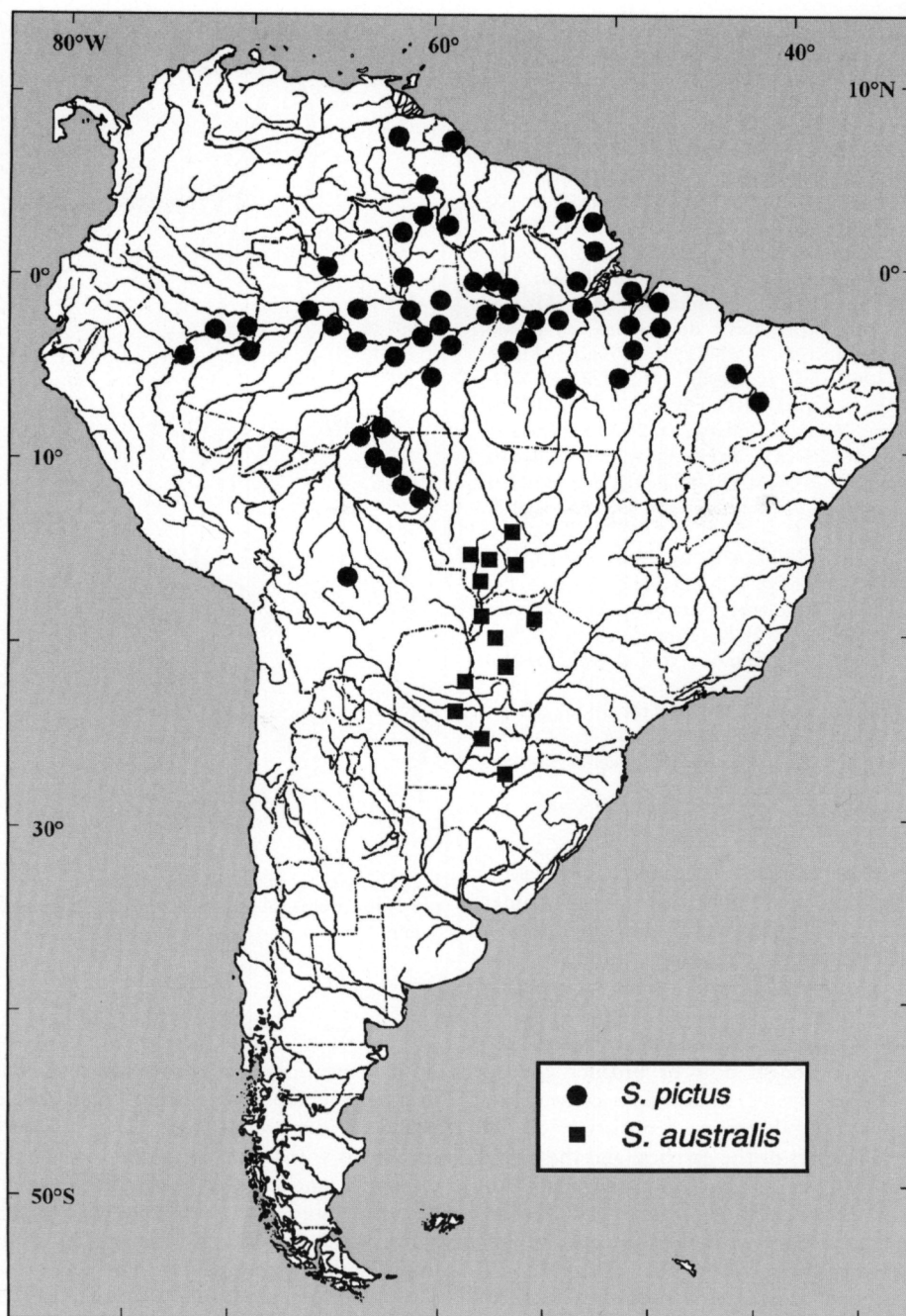


Fig. 38. Distribution map of *Sylviocarcinus australis* and *S. pictus*.

hair rows more strongly developed on the lower than on the upper borders, thus these limbs can be called natatorial.

Frontal part of proepistome (interantennular septum) broadly rounded, its surface smooth. The surface of the epistome is also smooth; anterior border of the buccal cavity with a distinct and m-shaped crest, the middle part of the "m" being bifid.

Sternal plate relatively long and narrow, totally covered by the abdomen at its base. Furrows between somites IV/V and VI/VII nearly reaching midline, the ones between somites V/VI and VII/VIII very short, ending halfway

between the beginning of the sterno-abdominal cavity and the midline; median line only present in somites VII–VIII.

Abdomen with segments III–VI fused, area of IVth segment with a pair of strong knobs in large males, in smaller ones these structures are faint or absent.

Male plp 1 with a poorly developed subdistal lobe. Subterminal spine-fields arranged in two well delimited longitudinal patches of which the lateral one is strongly developed and situated on the subdistal lobe, while the median one is very indistinct. Suture begins on the ventro-

mesial side and is displaced towards the dorsal side near to the basal level of the subdistal lobe, it is torched back again near the tip where it meets the terminally situated distal opening.

Measurements: 34.3 : 30.8 : 19.8 : 13.5 (holotype ♂)

Type locality: N-Paraguay, Rio Paraguay near Porto Max.

Distribution: Rio Paraguay-system of Brazil and Paraguay, probably also neighbouring parts of the Rio Paraná in Argentina.

Remarks: We are separating the present new species from *S. pictus* because of the marked and constant differences in the male plp 1 of the two species. In true *S. pictus*, the subdistal lobe is much more evident and the median patch of the subterminal spine fields is much better developed when compared with the new species *S. australis*. In this connection it is important to note, that the figure of the pleopod published by BOTT (1969: pl. 21 fig. 53) does not correspond to *S. pictus* as he states in the explanation to pl. 21, but to the present new species. The original photographs and the notes of BOTT were re-examined. The specimen figured on fig. 53 was collected from the Rio Paraguay (between Pto. Sastre and Pto. Casado in Paraguay), and was part of the "Zoologische Staatssammlung" in München. BOTT figured the true *S. pictus* on pl. 21 fig. 54, under the name *S. pictus pardalinus*. We agree with PRETZMANN (1983), that this subspecies is not separable from *S. pictus* proper, as the only difference between the two forms is the very variable number of anterolateral teeth.

By this action *S. pictus* is a species apparently confined to the Amazon basin, while the southern forms belong to *S. australis*. Both species are closely related and indistinguishable if adult males are not available. In young specimens of *S. pictus* the subdistal lobe is reduced, giving the pleopod a slender shape. Also the distal opening gets more or less long and slender, but there seems to be some variability in this character. In this respect there is also a great similarity with *Zilchiopsis oronensis* and *Z. collastinensis* and we have treated the distinguishing characters under the latter species. In fact the external morphology cannot be used to separate *Z. collastinensis*, *Z. oronensis*, *S. pictus*, and *S. australis*. This means, that females at present are not identifiable further than to genus.

Etymology: The name of this species is derived from its southern distribution.

Sylviocarcinus pictus (H. MILNE-EDWARDS 1853)

(Figs. 38–48)

- 1853 *Dilocarcinus pictus* H. MILNE-EDWARDS, Ann. Sci. nat., (3)20: 216.
- ? 1856 *Dilocarcinus pardalinus* GERSTÄCKER, Arch. Naturgesch., 22(1): 148.
- 1968 *Holthuisia picta rionegrensis* PRETZMANN, Entom. Nachrbl., 15(7–8): 74.
- 1969 *Sylviocarcinus pictus pictus*, — BOTT, Abh. senckenb. naturf. Ges., 518: 31, pl. 12 fig. 22a-b. [part. of text and pl. 12 figs. 22a-b; nec pl. 21 fig. 53 = *S. australis*.]
- 1969 *Sylviocarcinus pictus pardalinus*, — BOTT, Abh. senckenb. naturf. Ges., 518: 32, pl. 13 fig. 23a-b, pl. 21 fig. 54.
- 1969 *Sylviocarcinus devillei*, — BOTT, Abh. senckenb. naturf. Ges., 518: 28. [part.: 2 ♂ SMF 4334.]
- 1970 *Trichodactylus (Valdivia) pardalinus*, — DEL SOLAR, BLANCAS & MAYTA, Catal. Crust. Peru: 31.
- 1970 *Trichodactylus (Valdivia) pictus*, — DEL SOLAR, BLANCAS & MAYTA, Catal. Crust. Peru: 31.
- 1970 *Trichodactylus (Valdivia) pardalinus*, — FONSECA, Infme Inst. Mar Peru, 35: 51. [part.: nec Paraguay and Argentina.]
- 1972 *Sylviocarcinus pictus*, — SMALLEY & RODRIGUEZ, Tulane Stud. Zool. Bot., 17: 48, fig. 8.
- 1977 *Holthuisia pardalina*, — PRETZMANN, Anz. österr. Akad. Wiss. math.-naturw. Kl., 1977(7): 88.
- 1977 *Sylviocarcinus pictus pictus*, — MANNING & HOBBS, Biota acuát. Sudamerica austral: 159. [part.: nec Argentina, Paraguay.]
- 1978 *Holthuisia pardalina*, — PRETZMANN & RADDA, Anz. österr. Akad. Wiss. math.-naturw. Kl., 1978 (2): 590.
- 1978 *Sylviocarcinus pardalinus*, — BONAVENTURA et. al., Comp. Biochem. Physiol., 62A: 252.
- 1981 *Sylviocarcinus pictus*, — RODRIGUEZ, Aquat. Biota trop. South America, 1: 48. [part.: nec Paraguay River basin.]
- 1981 *Sylviocarcinus pardalinus*, — RODRIGUEZ, Aquat. Biota trop. South America, 1: 48.
- 1983 *Holthuisia picta picta*, — PRETZMANN, Ann. naturhist. Mus. Wien, 84(B): 321, pl. 1 figs. 1–2, pl. 2 figs. 3–5.
- 1985 *Sylviocarcinus pictus*, — CAMPOS, Caldasia, 14(67): 270.
- 1988 *Sylviocarcinus pictus*, — GOULDING, CARVALHO & FERREIRA, Rio Negro, rich life in poor water: 67.
- 1992 *Sylviocarcinus pictus*, — RODRIGUEZ, Faune tropicale, 31: 76, figs 4J, 5D, 7E, 9F, 13C, 27A–H [part.: material except specimens from Paraguay].
- 1992 *Sylviocarcinus* sp., — RODRIGUEZ, Faune tropicale, 31: 84, figs 4L, 7D, 9E, 13C, 26G–K [part.: 1 ♂ from ZMH K27047].
- Lectotype: ♂ (MNHN 4043), Peru: Loreto, Haute Amazone XII.1846, leg. F. DE CASTELNAU & E. DEVILLE.
- Paralectotype: 1 ♀ (MNHN 4392), data as lectotype.
- Material: Venezuela: Estado de Bolivar: 1 ♂ 1 ♀ (FMNH 3648), Tumeremo, Rio Cuyumi basin, 5.VIII.1995, B. B. CHERNOFF & A. MACHADO.
- Guyana: 1 ♂ (NHMW 6663), Rupununi river, Melville, 23.II.1913, leg. J. HASEMAN; 1 ♀ (NHMW 6652), idem, 24.II.1913, leg. J. HASEMAN; 1 ♀ (NHMW 6654), idem, 26.II.1913, leg. J. HASEMAN; 1 ♂ (NHML 1985-264), Rupununi river, S. of Guiana, leg. J. McCONNELL; 1 ♂ (NHML 1969.10.5.1), idem, IX.1957, leg. R. McCONNELL; 1 ♂ (NHML 1965.5.7:13), idem, Dadanawa crossing, 24.IV.1961, leg. R. McCONNELL.
- French Guyana: 1 ♂ 5 ♀ (MNHN B-20594), 1900, leg. F. GEAY; 1 ♀ (NHML 1926.10.6.1), Ipovein creek, 30.VIII.1925; 1 ♀ (MNHN B-17667), river Camopi, 1900, leg. F. GEAY.
- Brazil: [?] 1 ♀, dry (ZMB 372); 1 ♀ (47.0:41.4), holotype of *Dilocarcinus pardalinus* GERSTÄCKER (ZMB 2123); 1 ♂ (SMF 2715), leg. H. SIOLI; 1 ♀ (NHMW 6659), leg. ROSENBERG; 1 ♀ (ZSM 1093-1); 5 ♀ (IRSNB), Amazonian Region; 1 ♂ 1 ♀ (SMF 4343), Igarapé das 3 casas, Tabacorana, 10.XI.1941, leg. H. SIOLI. — Estado do Amapá: 1 ♂ 1 ♀ (MNHN B-17669), Haut Carsevenne [= Rio Calçoene], 1898, leg. F. GEAY; 1 ♀ (MZUSP 2403), Ferreira Gomes, VIII.1955, leg. F. NOVAES; 3 ♂ 2 ♀ (INPA-CR 517), Rio Jari, 19-26.VI.1987, leg. M. JEGU & J. ZUANON. — Estado de Roraima: 1 ♂ (FZB 1798), Rio Branco, 13.XII.1987, leg. M. C. MANSUR & E. BUCKUP; 2 ♂ 1 ♀ (MZUSP 2739), Rio Surumu, X.1966, leg. M. ALVARENGA; 2 ♂ (MZUSP 2420), Surumu, leg. ALVARENGA; 1 ♀ (AMNH 11434), Rio Surumu, Frechal, 1929, leg. TATE & CARTER; 1 ♂ (MZUSP 3595), Rio Branco, Boa Vista, 9.II.1969, leg. T. ROBERTS; 3 ♂ (INPA-CR 455), Rio Mucajá, 2.X.1986, leg. E. FERREIRA. — Estado do Amazonas: 1 ♂ (SMF 4707), Rio Marauá, leg. E. J. FITTKAU; 1 ♀ (SMF 4305), Rio Irapirapi, Marauá, 1963, leg. E. J. FITTKAU; 2 ♀ (SMF 2699), Rio Negro, Ponta Arara, X.1960, leg. H. SIOLI; 1 ♂ 2 ♀ (MZUSP 6303), Rio Negro, Cantagalo, 28.I.1972, EPA; 3 ♂ 3 ♀ (INPA-CR 147), Rio Pitinga, tributary of Rio Uatumã, 30.I.1985, leg. M. JEGU; 1 ♀ (MNRJ MD-1095), Rio Uatumã, Pres. Figueiredo,

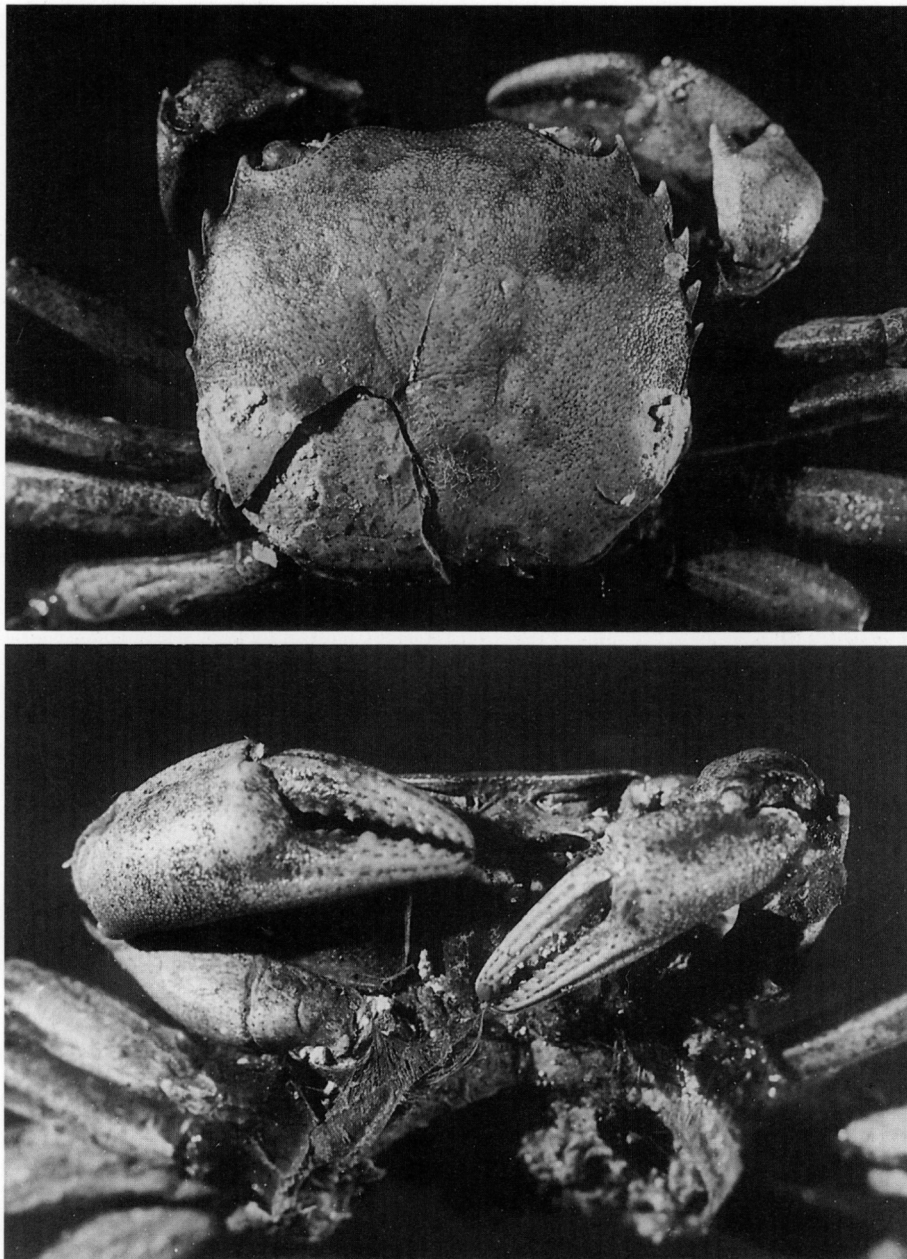


Fig. 39. *Sylviocarcinus pictus* (lectotype, MNHN 4043), dorsal and ventral aspect.

X.1987, leg. L. & J. ALVARENGA; 1 ♂ (MZUSP 4777), Igarapé Tucuxi, Auti-Paraná, 10.X.1968, EPA; 2 ♂ (INPA-CR 148), Paraná do Castanho, Lago Amanã, Rio Japurá, X.1983, leg. R. BEST; 1 ♀ (MZUSP 6320), Lago Amanã, VIII-X.1982, leg. R. BEST; 1 ♀ (UNAM EM 9912), Paraná do Amanã, Rio Japurá, IV.1984, leg. R. BEST; 1 ♂ 1 ♀ (SMF 2714), 2 ♀ (SMF 4312); Rio Solimões, Fonte Boa, 1961, leg. E. J. FITTKAU; 1 ♀, poor condition (MCZ 4929), Villa Bella, near Parintins, leg. Dr. MARCUS; 3 ♀ (MNRJ MD-1225), Freguesia do Arandirã, Parintins, 26.X.1984, leg. M. MATOS & M. FERNANDA; 1 ♂ (UFRGS 147), Igarapé Guaraná, Reserva do Km 60, near Manaus, 29.XII.1975, leg. CANELLA; 1 ♀ (MNHN B-17670), Manaus, leg. D'ANTHONAY; 1 ♀ (MCZ 4931), Confl. Rio Negro/Rio Amazonas, near Manaus, 4.IX.1865, leg. L. AGASSIZ; 1 ♂ (NHMW 6672), Mouth of Rio Negro, 18-24.IX.1912, leg. J. HASEMAN; 1 ♂ (23.6:20.2), Holotype of

Holthuisia picta rionegrensis PRETZMANN (NHMW 4942), Mouth of Rio Negro, 18.IX.1912, leg. J. HASEMAN; 2 ♂ (INPA-CR 454), Rio Amazonas, Ilha do Careiro, 13.VII.1986, leg. C. MAGALHÃES; 1 ♀ (INPA-CR), idem, 26.V.1986, leg. N. AGUIAR; 9 ♂ 12 ♀ (IRSNB), Paraná da Eva, 23.X.1963, leg. G. MARLIER; 1 ♂ (SMF 18707), Rio Solimões, Manacapuru, 9.VIII.1924, leg. W. EHRHARDT; 1 ♂ juv. (SMF 18706), idem, 10.VIII.1924, leg. W. EHRHARDT; 1 ♀ (ZMH K-8713), idem, 8.VIII.1924, W. EHRHARDT; 1 ♀ (MZUSP 6356), idem, 29.IX.1968, leg. H. BRITSKI; 2 ♂ (MZUSP 4778), Lago Manacapuru, 12-13.XI.1967, leg. H. BRITSKI; 1 ♂ (INPA-CR 306), Lago de Tefé, Caititu, 30.V.1979; 1 ♀ (MCZ 6372), Rio Solimões, Tefé and environs, 14.IX.1865, leg. L. AGASSIZ et al.; 1 ♂ (SMF 4336), Rio Solimões, 31.VIII.1967, leg. E. J. FITTKAU; 1 ♂ (SMF 22242), Rio Solimões, Ilha da Marchantaria near Manaus, 17. III. 1993, leg. P. PETRY; 5 ♂ 4 ♀ (MZUSP

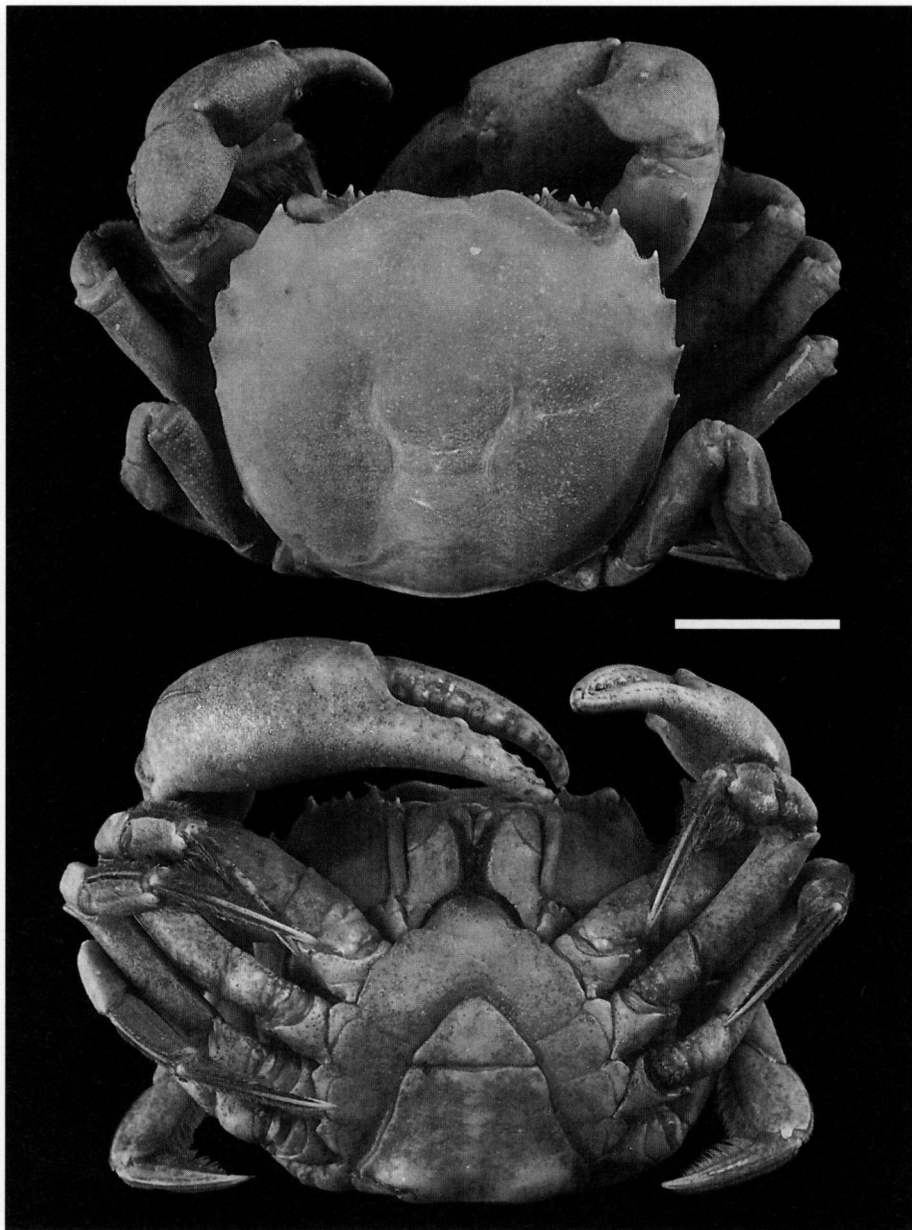


Fig. 40. *Sylviocarcinus pictus* (SMF 2715) dorsal and ventral aspect. — Scale 20 mm.

4782), Rio Madeira, 25 km downstream Nova Olinda, 26-27.XI.1967, leg. H. BRITSKI; 1 ♂ 3 ♀ (ZMB 15541), Rio Amazonas, Paricatuba, leg. A. SCHULZ; 5 ♂ 6 ♀ (MZUSP 1649), Benjamin Constant, 1963, leg. K. LENKO; 1 ♂ (SMF 4306), Rio Aripuanã, Beneficiente, 16.I.1962, leg. E. J. FITTKAU. — Estado do Pará: 1 ♂ (MCZ 4928), THAYER Exped.; 2 ♂ 1 ♀ (MZUSP 6302), Vila Mainatá, Igarapé Uruazinho, 27.VII.1970, EPA; 5 ♂ 4 ♀ (MZUSP 2291), Ilha do Marajó, Rio Arari, VII.1965, leg. N. MENEZES; 1 ♂ (MZUSP 2318), Rio Trombetas, 20.IX.-13.X.1965, leg. P. VANZOLINI; 2 ♂ (INPA-CR 145), Rio Mapuera, 28.IV.1985, leg. M. JEGU; 2 ♂ 1 ♀ (INPA-CR 330), 1 ♂ 1 ♀ (UFPB 3090), Rio Trombetas, near Cachoeira Porteira, 21.X.1985, leg. C. MAGALHÃES; 1 ♂ (MZUSP 2299), Belém, 1.II.1964, leg. P. VANZOLINI; 3 ♂ 5 ♀ (MNRJ MD-1199), Utinga, Belém, II.1963, leg. ROPPA & MIELKE; 1 ♂ (MNRJ MD-1223), Mercado Ver-o-Peso, Belém, 10.III.1958, leg. L. TRAVASSOS & F. PIRES; 1 ♂ (ZSM

1096-1), Peixe-Boi near Pará, IV-VI.1910, leg. MÜLLER; 2 ♂ 1 ♀ (SMF 4308), Rio Guamá, near Ourém, leg. H. SIOLI; 1 ♀ (MZUSP 4783), Furo do Aquiqui, mouth of Rio Xingú, 18.X.1970, leg. P. VANZOLINI; 1 ♂ (MZUSP 6365), Rio Capim, Vila Santana, 14.VIII.1970, EPA; 2 ♀ (MZUSP 2734), Rio Trombetas, mouth of Lago Parú, Oriximiná, 5-8.IV.1967, leg. H. BRITSKI; 2 ♂ (MZUSP 4781), Lago Parú, Oriximiná, 20.XII.1967, leg. H. BRITSKI; 1 ♀ (MZUSP 6296), Oriximiná, 13.XI.1969, EPA; 1 ♂ (MZUSP 4788), idem, 12.-15.X.1969, EPA; 1 ♀ (MZUSP 3591), 1 ♀ 1 ♀ (SMF 2700), Igarapé da Mulata, 20.IX.1954, leg. H. SIOLI; 2 ♀ (MZUSP 4780), Igarapé Jacaré, Faro, 13.XII.1967, leg. H. BRITSKI; 8 ♀ 5 ♀ (MZUSP 2733), 9 ♀ 5 ♀ (MZUSP 2731), 4 ♀ 4 ♀ (MZUSP 2732), Rio Tapajós, Santarém, II.1967, leg. H. BRITSKI; 1 ♀ (IRSNB), idem, 5.XII.1963, leg. G. MARLIER; 1 ♀ (IRSNB), idem, 4.XII.1963, leg. G. MARLIER; 1 ♀ 4 ♀ (IRSNB), idem, I.1964, leg. KNOWLES & G. MARLIER; 1 ♀ with young (IRSNB), idem,



Fig. 41. *Sylviocarcinus pictus* (holotype of *Holthuisia picta rionegrensis* PRETZMANN 1968, NHMW 4942), dorsal and ventral aspect. — Scale 10 mm.

8.XII.1963, leg. G. MARLIER; 1 ♀ (IRSNB) Santarém, Pindobal, 2.XII.1963, leg. G. MARLIER; 2 ♀ 1 ♀ (SMF 4335), Rio Tapajós, Pindobal, 28.X.1945, leg. H. SIOLI; 11 ♀ (MZUSP 1648), Santarém, 1921, leg. E. GARBE; 2 ♀ 1 ♀ (NHMW 6665), Santarém, 1913, leg. J. HASEMAN; 1 ♀ (MZUSP 4779), Rio Tapajós, Alter do Chão, 18-19. IX.1969, leg. P. VANZOLINI; 15 ♀ 8 ♀ (INPA-CR 142), idem, 25.XI.1983, leg. M. GOULDING; 1 ♀ (MZUSP 6329), Ilha de Tapaiúna, 20.XI.1970, leg. P. VANZOLINI; 1 ♀ (MZUSP 4776), Igarapé Mapará, Paraná Samaúma, Rio Tocantins, 5.IX.1970, leg. N. MENEZES; 1 ♀ (MZUSP 9695), Braço do Igarapé São Lourenço, Furo de Panaguera, Rio Tocantins, 30.VIII.1979, leg. N. MENEZES; 3 ♀ (INPA-CR 146), Rio Tocantins, Mocajuba, 30.I.1985, Eq. Ictiol. INPA; 2 ♀ 1 ♀ (INPA-CR 303), Rio Curuá-Una, XI.1978, leg. V. PY-DANIEL; 1 ♀ (MNRJ MD-1118), Rio Tocantins, Canal do Muru, Tucuruí, 21.IX.1984, leg. W. ZWINK & L. ALVARENGA; 1 ♀ (MNRJ MD-1123), Igarapé do Caripi, tributary M. esq. Rio Tocantins, Tucuruí, 23.IX.1984, leg. W. ZWINK & L. ALVARENGA; 1 ♀ 1 ♀ (MNRJ MD-1127), Rio Tocantins, Nazaré dos Patos, Tucuruí, 19.IX.1984, leg. W. ZWINK & L. ALVARENGA; 1 ♀ (MNRJ MD-1131), Rio Tocantins, Canal Jaguará, Tucuruí, 20.IX.1984, leg. W. ZWINK & L. ALVARENGA; 2 ♀ 1 ♀ (MZUSP 4784), Rod. Tucuruí-Mato Grosso, Km 11, 22.IX.1970, leg. N. MENEZES; 1 ♀ (SMF 4311), Lago Jurueiri, Rio Tapajós, 25.X.1947, leg. H. SIOLI; 1 ♀ (SMF 4310), Rio Cupari, Goiabal, 27.X.1948, leg. H. SIOLI; 1 ♀ (SMF 4342), Igarapé do Caxias,

mouth Rio Cupari, 26.X.1948, leg. H. SIOLI; 1 ♀ (MZUSP 6324), Rio Tapajós, Monte Cristo, 14.XII.1970, EPA; 1 ♀ (MZUSP 6309), idem, 10.XII.1970, leg. P. VANZOLINI; 1 ♀ (MZUSP 4786), Rio Tapajós, Uruá, Pq. Nac. do Xingu, BR-230, Km 64, 26.I.1979, leg. J.C. DE OLIVEIRA; 1 ♀ (INPA-CR 136), Igarapé Bacuri, tributary of Rio Tocantins, 6.VII.1982, Eq. Ictiol. INPA; 1 ♀ (MZUSP 7053), Rio Itacaiúnas, Serra dos Carajás, 8.VIII.1985, leg. J. HOLDER; 1 ♀ (MPEG), Rio Fresco, Gorotiba, 30.IV.1983, leg. W. OVERALL. — Estado do Maranhão: 1 ♀ (MNRJ MD-1182), Brejinho, 30 km from Terezina, Mun. de Caxias, 1973, leg. L. MOOJEN e colab. — Estado de Rondônia: 1 ♀ (MZUSP 2406), São Luís de Cáceres de Porto Velho, 1939, leg. AVELAR; 7 ♀ 3 ♀ (INPA-CR 518), Igarapé Bom Futuro, tributary of Rio Jamari, 30.VII.1983, leg. V. PY-DANIEL e colab.; 6 ♀ 2 ♀ (INPA-CR 304), Rio Machado, Ji-Paraná, VI.1984, leg. J. C. MALTA; 4 ♀ 1 ♀ (INPA-CR 319), idem, 2.X.1985, leg. J. C. MALTA; 2 ♀ 4 ♀ (MNRJ MD-1302), Igarapé do Leitão, BR-364, Km 316, Pres. Médici, 16.VII.1986, leg. W. ZWINK; 3 ♀ 2 ♀ (MNRJ MD-1288), Rio Tamurapé, BR-364, Km 236, Cacoal, 16.VII.1986, leg. W. ZWINK; 13 ♀ 16 ♀ (MNRJ MD-1291), Rio Urupá, Mun. de Ouro Preto do Oeste, 13.VII.1986, leg. W. ZWINK; 1 ♀ (MNRJ MD-1297), idem, 15.VII.1986, leg. W. ZWINK; 13 ♀ 12 ♀ (MNRJ MD-1292), Rio São Domingos, Mun. de Ouro Preto do Oeste, 12.VII.1986, leg. W. ZWINK; 4 ♀ 3 ♀ (MNRJ MD-1293), Igarapé do Miolo, Mun. de Ouro Preto do Oeste, 16.VII.1986, leg. W. ZWINK; 1 ♀ 3 ♀ (MNRJ MD-1294),



Fig. 42. ? *Sylviocarcinus pictus* (holotype of *Dilocarcinus pardalinus* GERSTÄCKER 1856, ZMB 2123), dorsal and ventral aspect. — Scales 20 mm.

1 ♀ (MNRJ MD-1295), Rio Mariapé, Mun. de Ouro Preto do Oeste, 15.VII.1986, leg. W. ZWINK; 3 ♀ 3 ♀ (MNRJ MD-1298), Córrego Boa Vista, Mun. de Ouro Preto do Oeste, 13.VII.1986, leg. W. ZWINK; 6 ♀ 4 ♀ (MNRJ MD-1299), Igarapé Bela Vista, Mun. de Ouro Preto do Oeste, 11.VII.1986, leg. W. ZWINK; 12 ♀ 6 ♀ (MNRJ MD-1303), Córrego próx. à saída de Nova União, Mun. de Ouro Preto do Oeste, VII.1986, leg. W. ZWINK; 1 ♀ (MNRJ MD-1307), Igarapé Mandi, Mun. de Ouro Preto do Oeste, 15.VII.1986, leg. W. ZWINK; 2 ♀ 2 ♀ (INPA-CR 558), Rio Preto, 19.VIII.1985, leg. V. PY-DANIEL e colab.; 3 ♀ (MNRJ MD-1296), Rio Riozinho, BR-364, Km 220, Pimenta Bueno, 16.VII.1986, leg. W. ZWINK; 5 ♀ 5 ♀ (MNRJ MD-1308), idem, 17.VII.1986, leg. W. ZWINK.

Peru: 1 ♀ (SMF 4302), Rio Saimiria, Amazon basin, VIII.1952, O. DE LA PUENTE. — Depto. Loreto: 1 ♀ (USNM 76778), Rio Ampiyacu, near Pebas, 31.VII.1935, leg. W. G. SCHERER; 1 ♂ (MCZ 4930), Amazon rv. at Nauta; 3 ♂ 7 ♀ (NHMW 4177), 2 ♂ 1 ♀ (NHMW 4178), 25 Km W of Iquitos, 1976, leg. G. PRETZMANN.

Bolivia: Depto. Cochabamba: 1 ♂ (ZSM 1094-1), Region Chaparé, Rio Chipiriri, X.1953, leg. W. FORSTER & O. SCHINDLER.

No locality indication: 2 ♂ (MZUSP 2298); 1 ♂, dry (ANSP 3115), ? Upper Amazon, leg. Dr. T. B. WILSON; 3 ♂ 1 ♀ (MNHN BP 326), Ht. Amazone, leg. JOBERT.

Diagnosis: Three to four spine-tipped anterolateral teeth behind the exorbital tooth of the carapace. Abdomen with segments III–VI fused. Subterminal spine-field of male plp 1 partly situated on a well developed subdistal lobe, median part of subterminal spine field strongly developed.

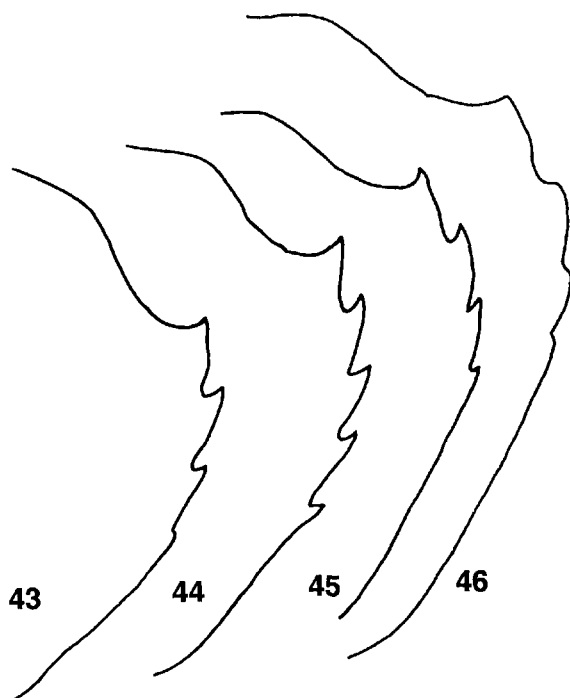
Measurements: 25.5 : 22.0 : ? : ? . (lectotype ♀)

Type locality: Peru: Prov. Loreto.

Distribution: Guyana, Suriname, Peru, Bolivia, and Brazil.

Remarks: The differences between *S. pictus* and *S. australis* were discussed under the former species.

We have reexamined the female holotype of *Dilocarcinus pardalinus* GERSTÄCKER 1856. The female genital ducts are typically those of a *Sylviocarcinus* rather than *Zilchiopsis*. The type locality of this species is unknown,



Figs. 43-46. *Sylviocarcinus pictus*, variability of carapace contours. — 43) INPA-CR 303; 44) MZUSP 1648; 45) INPA-CR 304a; 46) INPA-CR 304b.

so that it is impossible to say with certainty if it belongs to this or the former species. The number of the anterolateral teeth, used by BOTT (1969) to separate *S. pictus* from *S. pardalinus* is variable in both *S. pictus* and *S. australis*. Thus, *D. pardalinus* GERSTÄCKER has to be treated as incertae sedis within *Sylviocarcinus*.

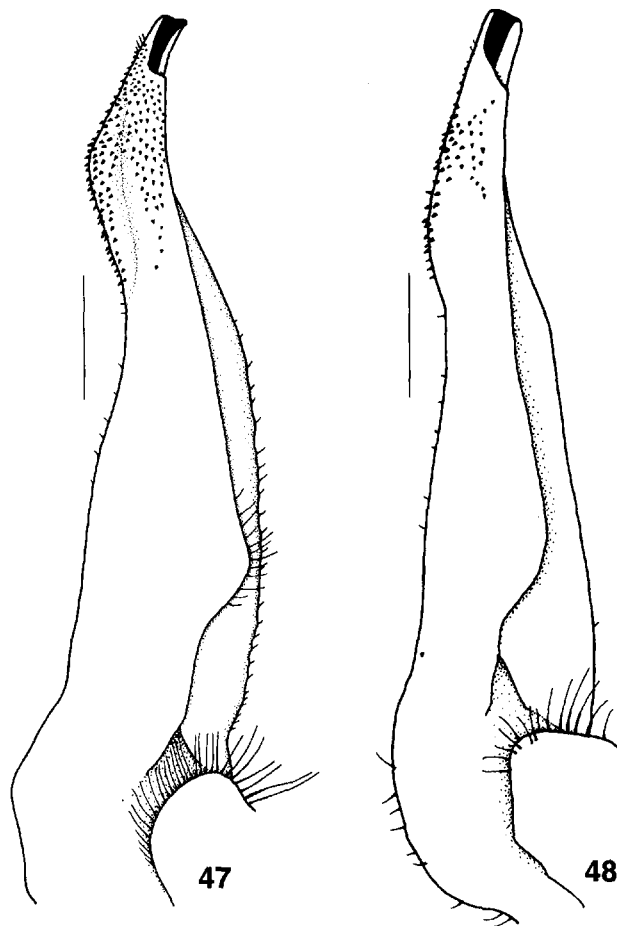
We have also reexamined the holotype of *Holthuisia picta rionegrensis* described by PRETZMANN (1968b). It is an immature male in which the knobs of the IIIrd abdominal segment are not yet developed. We have seen this character state in many immature specimens throughout the range of the species, so that it cannot be used for separating *H. picta rionegrensis*. All other characters perfectly agree with *S. pictus* specimens of similar size. We thus agree with RODRIGUEZ (1992) in treating this form as a mere synonym of *S. pictus*.

Zilchiopsis BOTT 1969

1969 *Zilchiopsis* BOTT, Abh. senckenb. naturf. Ges., 518: 34.

Key to the species of *Zilchiopsis*

1. Anterolateral borders with very faint indications of teeth, if at all. Carapace only clearly convex in antero-posterior direction, regions hardly indicated. Male plp 1 with a short distal end projecting beyond the subterminal spine field, never reaching up to half the length of the latter *Z. cryptodus*.
- Anterolateral borders with 3-4 distinct teeth, clearly traceable even after fading away in large specimens. Carapace clearly convex in both directions, regions clearly visible. Male plp 1 with



Figs. 47-48. *Sylviocarcinus pictus*, right male plp 1, ventro-mesial aspect. — 47) SMF 4308; 48) holotype of *Holthuisia picta rionegrensis* PRETZMANN 1968, NHMW 4942. — Scales 1 mm.

- a long distal end projecting beyond the subterminal spine-field, always at least half as long as the latter 2.
2. Male plp 1 with tip relatively short, its length about half the length of the subterminal spine-field *Z. oronensis*.
 - Male plp 1 with tip extremely long and slender, its length always clearly exceeding half the length of the subterminal spine-field *Z. collastinensis*.

Zilchiopsis collastinensis (PRETZMANN 1968)

(Figs. 49-53)

- 1898 *Orthostoma pictum*, — NOBILI, Ann. Mus. civ. Stor. nat. Genova, (2)19: 11 [part.: specimens from Buenos Aires].
- 1968 *Holthuisia picta collastinensis* PRETZMANN, Entom. Nachrbl., 15(7/8): 74.
- 1969 *Zilchiopsis sattleri* BOTT, Abh. senckenb. naturf. Ges., 518: 34, pl. 13 fig. 24a,b, pl. 21 fig. 55.
- 1969 *Sylviocarcinus pictus pictus*, — BOTT, Abh. senckenb. naturf. Ges., 518: 31 [part.: specimens from Buenos Aires, SMF 4337].
- 1969 *Holthuisia pictus*, — SCHMITT, Proc. biol. Soc. Washington, 82: 106, 109, fig. 7a-f. [non *Trichodactylus* (*Dilocarcinus*) *pictus* H. MILNE-EDWARDS 1853.]

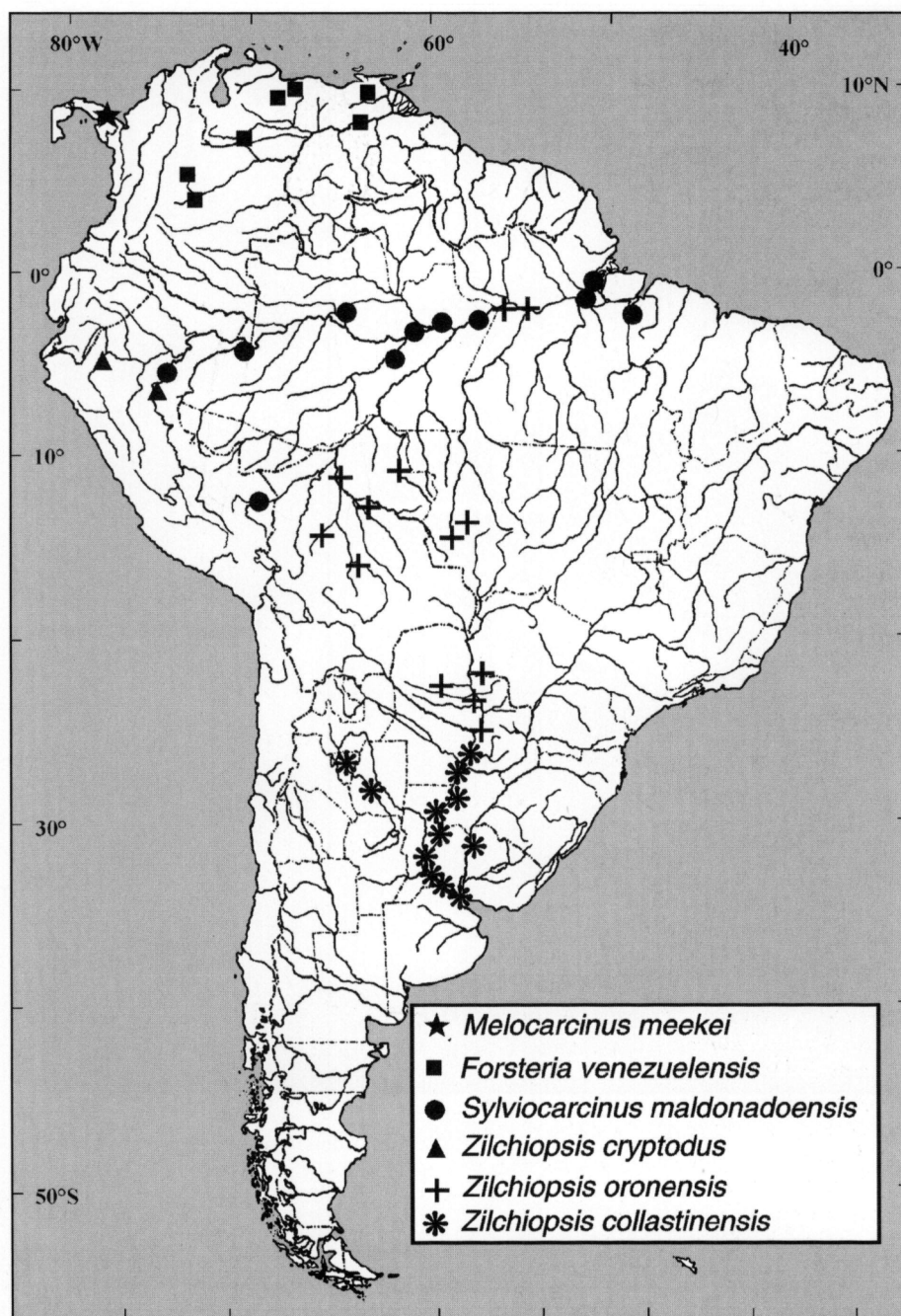


Fig. 49. Distribution map of *Forsteria*, *Melocarcinus*, *Sylviocarcinus maldonadoensis*, and *Zilchiopsis*.

- 1976 *Sylviocarcinus pictus*, — LOPRETTO, Limnobiots, 1(3): 68, 81, figs. 22–25. [non *Trichodactylus* (*Dilocarcinus*) *pictus* H. MILNE-EDWARDS 1853.]
 1977 *Zilchiopsis sattleri*, — MANNING & HOBBS, Biot. acuat. Sudamer. austral: 160. [part., nec Cuenca del Paraguay.]
 1977 *Sylviocarcinus pictus pictus*, — MANNING & HOBBS, Biot. acuat. Sudamer. austral: 159. [part.: Argentina.]
 1981 *Zilchiopsis sattleri*, — RODRIGUEZ, Aquatic Biota trop. South America, 1: 48. [part.: nec Paraguay river basin.]
 1992 *Sylviocarcinus* sp., — RODRIGUEZ, Faune tropicale, 31: 84 [part.: "Argentinian specimens illustrated and reported by LOPRETTO (1976)"].

Holotype: ♀ (NRMSt 11043; ex-5569), Argentina: Prov. Santa Fé, Collastine, leg. Kapt. HÖGBERG (i vattenpölar i land efter en öfversvemning).

Material: Argentina: 1 ♂ (MCSNM 1009), Rio Paraná; 3 ♂ 7 ♀ (MCSNG), idem, 1873, leg. Ing. MONETA. — Prov. Formosa: 1 ♂ (MACN 24709), Formosa, III.1941, leg. H. HEPPER. — Prov. Tucumán: 2 ♂ 2 ♀ (MLP ex-109), 1 ♂ 4 ♀ (MLP ex-109/12276) Rio Sali, III.1944, leg. UMANA. — Depto. Santiago del Estero: 2 ♀ (MLP ex-123), Santiago del Estero; 5 ♀ (MLP ex-102), idem, 19.V.1908. — Prov. Chaco: 1 ♂ imat. (MLP ex-103), Arroyo Tapenaga, 28.XI.1934. — Prov. Corrientes: 2 juv. ♂ (MACN 32127), Arroyo Batelito, II.1982, leg. F. QUINTANA; 1 ♂



Fig. 50. *Zilchiopsis collastinensis* (holotype, NRMSt 11403), dorsal and ventral aspect. — Scale 20 mm.

(MCSNG), Empredado, 1890, leg. G. CAPURRO. — Prov. Santa Fé: 1 ♀ 1 juv. (MLP ex-161), Río Paraná-Mini, in front of Isla La Invernada, depto. Reconquista, XII. 1948, leg. R. RINGUELET; 4 ♂ 5 ♀ (MACN 28704), Helvecia, XII.1974; 1 ♂ (MACN 25588), Colonia San Matías, Río San Javier, XI.1942, leg. M. VIANA & J. NAZARA; 2 ♂ 2 ♀ (MLP ex-111/12291), 6 ♂ 1 ♀ (MLP ex-118), Guadalupe and Altoverde, 17.IV.1942 and 5.VI.1940, leg. A. BERST; 2 ♂ (MLP ex-117), Guadalupe, 14.IV.1947; 1 ♂ 1 ♀ (MACN 19184-1), Laguna Guadalupe, 1930, leg. A. CARCELLES & A. ZOTTA; 1 ♂ 1 ♀ (MACN 24423), idem, VII.1940, leg. A. BERST; 1 ♂ 2 ♀ (MACN 17693), Río Parana, Santa Fé, III.1928, leg. R. RIVAS; 2 ♂ (MACN 23022), Río Salado, Bañados de Santo Tomé, 4.V.1936, leg. A. RAGONESE; 1 ♂ (MACN 7495), Río Parana, Rosario, III.1949, leg. R. LOPEZ; 5 ♂ 2 ♀ (MACN 25628), 1 ♂ (MZUSP 9823), Río Paraná, in front of Rosario, I.1943, leg. S. SILCILIANO. — Prov. Entre-Ríos: 1 ♂ (MLP ex-114), Concordia, 1943, leg. E. J. MACDONAGH; 2 ♀ (MACN 24309), Brazo Largo (delta), 5.II.1940, leg. A. NANI; 2 ♂ (MACN 21790), Arroyo San Antonio, delta, III.1934, leg. I. ASTARLOA. — Prov. Buenos Aires: 17 ♂ 19 ♀ (MACN 25986), 1 ♂ 1 ♀ (INPA-CR 561), 2 ♂ 1 ♀ (MZUSP 9823), Río Paraná, San Nicolás, X.1945, leg. A. S.

SCASSO; 9 ♂ 6 ♀ (MLP ex-12303), idem, IX.1949, leg. S. RIVA; 2 ♂ (MLP ex-107), Río Paraná, San Pedro, 29.I.1946, leg. MACDONAGH; 1 ♂ (MACN 6755), idem, VII.1930, leg. A. Pozzi & S. ROMERO; 1 ♀ (MACN 21060), delta del Parana, II.1933, leg. P. SERIE; 4 ♂ 4 ♀ (MACN 16377), Canal Arias, delta, II.1926, leg. R. POUSADA; 2 ♂ 1 ♀ (FCEyN), Río Paraná, mouth of Canal Arias, winter 1945; 1 ♀ (MACN 30141), Baradero, 26.IX.1973, leg. GALLARDO & M. CANEVARI; 1 ♀ (MACN 22398), Río Paraná, Pasaje Talavera, I.1935, leg. J. PARODIZ; 1 ♂ (MACN 29266), Arroyo Antequera, at 200 m distance from Paraná de las Palmas, V.1978, leg. POLLITZER; 1 ♂ (MLP ex-101), delta del Río Parana, Paraná de las Palmas, 6.XII.1936, leg. R. S. CASTILLO; 1 ♂ (MACN 23617-1), Río de la Plata, Isla Martín García, IV.1938, leg. P.J. HAEDO & S. SICILIANO; 1 ♂ (MACN 20198), San Fernando, IV.1932, leg. M. D-JURADO; 1 ♂ (MACN 7811), idem, 1952, leg. J. GALLARDO; 1 ♂ (MACN 6758), Río de la Plata, San Isidro, IV.1934, leg. H. GAVIO; 1 ♂ (MACN 25929), Río Capitán, delta, I.1945, leg. E. RISO; 1 ♀ (MACN 6757), Río de la Plata, Olivos, IV.1948, leg. E. OLIVETO; 3 ♀ (MACN 12192), Olivos, VI.1920, leg. J. MERANI; 1 ♀ (MACN 14511), río de la Plata, VIII.1924, leg. J. MERANI; 2 ♂ (FCEyN), Buenos Aires, 1983; 4 ♂ (ZMH

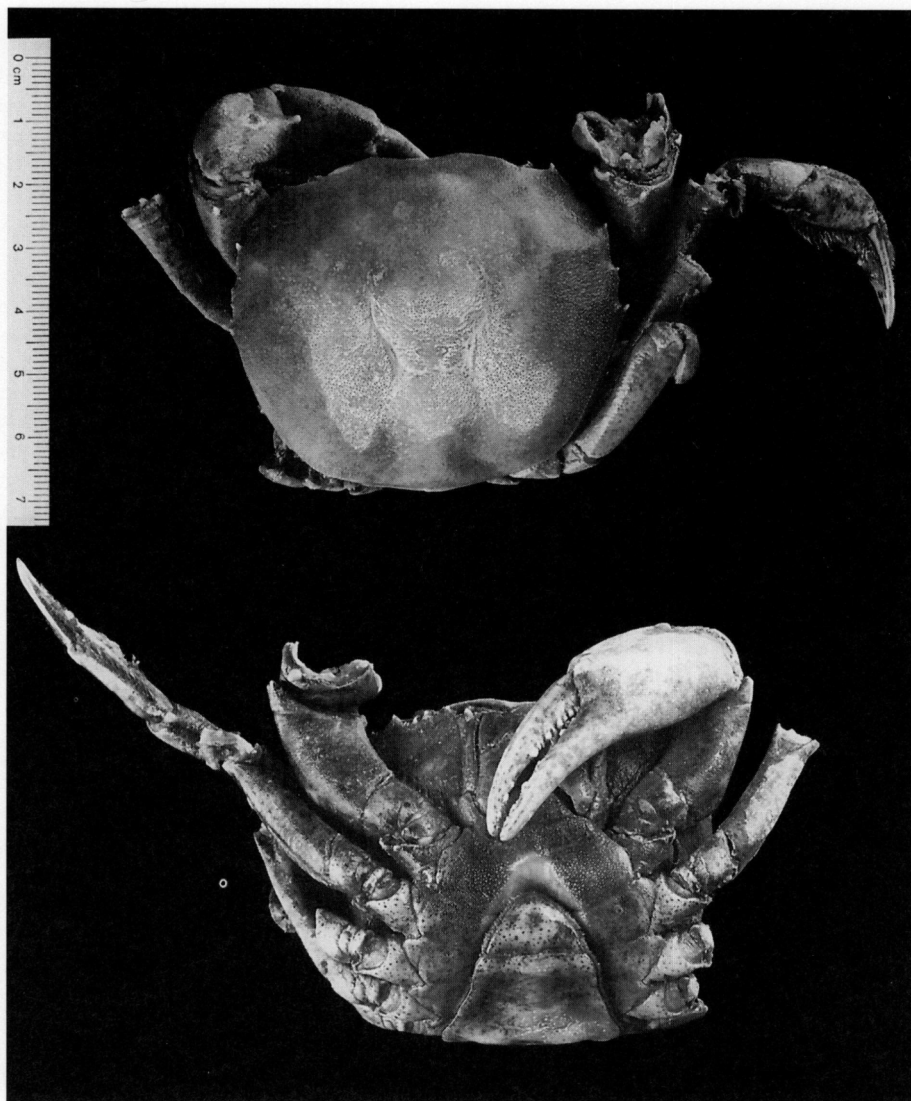


Fig. 51. *Zilchiopsis collastinensis* (holotype of *Zilchiopsis sattleri* BOTT 1969, SMF 4365), dorsal and ventral aspect.

K-5255), ? Buenos Aires, 9.IV.1920, ded. Dr. P. FRANK; 2 ♀ (SMF 4337), Buenos Aires, in the 1890ies, leg. L. WALTHER, S. BRUNN vend. 7. X. 1912; 2 ♀ (MCSNG), idem, leg. RAMORINO.

With doubtful locality: 1 ♂, holotype of *Zilchiopsis sattleri* BOTT (SMF 4365), "[Bolivien, Rio Chaparé] Brasilien, W. EHRHARDT".

Diagnosis: Carapace subcircular, clearly convex in both directions, regions well delimited. Male plp 1 bent following a regular curve, distal end beyond the subterminal spine field very long and slender, its length about 3/4 of the length of the latter.

Measurements: 39.0 : 33.4 : 20.7 : 15.0 (Holotype ♂)

Type locality: Argentina: Prov. Santa Fé: Colastine [probably Colastiné, 31°37'S 60°36'W].

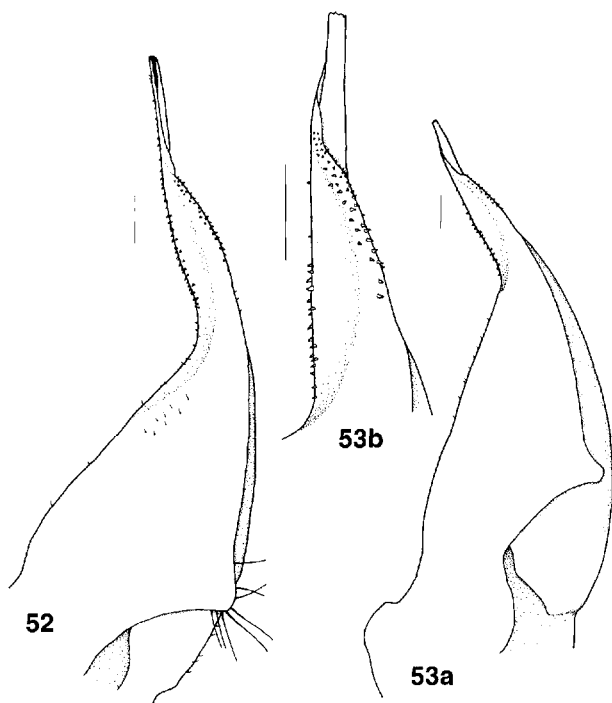
Distribution: Probably restricted to Argentina.

Remarks: The long and slender distal part of the plp 1 is a distinctive character of *Zilchiopsis collastinensis*. All

specimens examined from Argentina displayed this character, in contrast, the Brazilian and Bolivian material had short tipped pleopods which identified them as *Z. oronensis*.

BOTT (1969) named the present species with the distinctive morphology of the plp 1 *Zilchiopsis sattleri*. In fact, we are only now able to classify PRETZMANN's *Holthuisia picta collastinensis*. Its type specimen is a female, but the genital duct shows very clearly that it belongs to *Zilchiopsis* rather than to *Sylviocarcinus* (see MAGALHÃES & TÜRKAY 1995a under remarks to *Zilchiopsis*). After having examined an abundance of material, it became clear that the only *Zilchiopsis* occurring in Argentina is the species named *Z. sattleri* by BOTT. As the type locality of *Z. collastinensis* is in Argentina, this name must be considered a senior synonym of *Z. sattleri* and has to be treated as the valid name of the species.

The type locality of *Z. sattleri* remains a problem. The original label of the holotype is missing and we only found



Figs. 52–53. *Zilchiopsis collastinensis*, right male plp 1, ventromesial aspect. — 52) ZMH K-5255; 53) holotype of *Zilchiopsis sattleri* BOTT 1969, SMF 4365. — Scales 1 mm.

a very dubious label with the handwriting of R. BOTT which read "[Rio Chaparé, Boliv.], Brasilien, EHRHARDT". As far as we know EHRHARDT has never collected in Bolivia, and the species most probably does not occur in Brazil. The only explanation may be a mixing up of locality labels, which cannot be positively proved, but is very probable. Due to this confusion RODRIGUEZ (1992) stated he had examined material from near to the type locality. However, his specimens belong to the northern tropical form separated hereafter under the specific name of *Z. oronensis*. His figures show clearly that he did not have the characteristic southern species.

Zilchiopsis cryptodus (ORTMANN 1893)

(Figs. 49, 56–57)

- 1893 *Dilocarcinus cryptodus* ORTMANN, Zool. Jb. Syst., 7: 493.
 1969 *Zilchiopsis cryptodus*, — BOTT, Abh. senckenb. naturf. Ges., 518: 35, pl. 14 fig. 25a, b, pl. 22 fig. 57.
 1981 *Zilchiopsis cryptodus*, — RODRIGUEZ, Aquat. Biota trop. South America, 1: 48.
 1983 *Zilchiopsis (Zilchiopsis) cryptodus*, — PRETZMANN, Ann. naturhist. Mus. Wien, 84(B): 318, 327.
 1992 *Zilchiopsis cryptodus*, — RODRIGUEZ, Faune tropicale, 31: 102.

Holotype: ♂ (MZVS), Peru: Depto. Loreto: Rio Ucayali, leg. REISS.

Material: 1 ♂ (NHML 1926.11.24.1), Peru: Depto. Amazonas, GOODMAN THOMAS-Expd.

Diagnosis: Carapace transversely oval, clearly convex in antero-posterior direction, regions hardly indicated. Male plp 1 bent following a regular curve, distal end extending beyond subterminal spine field short, its length much less than half length of the spine field.

Measurements: 34.6 : 26.1 : 17.1 : 11.3 (holotype ♂).

Type locality: Peru: Rio Ucayali.

Distribution: Amazon drainage of Peru, to date only known from the material cited above.

Remarks: The present species is distinguished from its congeners by the characters given in the diagnosis. Regarding the very few specimens known to date, the carapace characters should be used with great care, and the plp 1 should be compared when identifying specimens of this genus.

Zilchiopsis oronensis (PRETZMANN 1968)

- 1896 *Dilocarcinus pictus*, — NOBILI, Boll. Mus. Zool. Anat. comp. Torino, 11: 1.
 ? 1896 *Dilocarcinus pardalinus*, — NOBILI, Boll. Mus. Zool. Anat. comp. Torino, 11: 1.
 1898 *Orthostoma pictum*, — NOBILI, Ann. Mus. Stor. nat. Genova, (2)39: 11 [part.: ♂ from Rio Apa].
 ? 1904 *Trichodactylus (Valdivia) pardalinus*, — RATHBUN, Nouv. Arch. Mus. Hist. nat. Paris, 6(4): 242 [part.: Paraguay].
 ? 1904 *Trichodactylus (Dilocarcinus) pictus*, — RATHBUN, Nouv. Arch. Mus. Hist. nat. Paris, 6(4): 242 [part.: Paraguay].
 1906 *Trichodactylus (Dilocarcinus) pictus*, — RATHBUN, Nouv. Arch. Mus. Hist. nat. Paris, 8(4): 62 [part.: "Colonia Risso, Rio Apa (NOBILI)"; ? ♀ "reçu du Mus. Copen., Rio Paraguay, près Riacho del Oro" (USNM 20093)].
 1920 *Trichodactylus (Dilocarcinus) pictus*, — COLOSI, Boll. Mus. Zool. Anat. comp. Torino, 35(734): 16.
 ? 1920 *Trichodactylus (Valdivia) pardalinus* [sic !], — COLOSI, Boll. Mus. Zool. Anat. comp. Torino, 35(734): 16 [error].
 1968 *Valdivia (Valdivia) serrata oronensis* PRETZMANN, Ent. Nachr. Bl., 15 (7–8): 72.
 1969 *Sylviocarcinus devillei*, — BOTT, Abh. senckenb. naturforsch. Ges., 518: 28 [part.: 1 ♂ SMF 4889].
 1969 *Sylviocarcinus pictus*, — BOTT, Abh. senckenb. naturforsch. Ges., 518: 31, pl. 21, fig. 53 [part.: 1 ♂ ZMH K-27047, 1 ♂ SMF 4889].
 1969 *Zilchiopsis sattleri* BOTT, Abh. senckenb. naturforsch. Ges., 518: 34 [part.: 1 ♂ 1 ♀ ZMH K-3628].
 1977 *Sylviocarcinus pictus*, — MANNING & HOBBS, Biota acuát. Sudamerica austral: 159 [part.: Paraguay].
 1977 *Zilchiopsis sattleri*, — MANNING & HOBBS, Biota acuát. Sudamerica austral: 160 [part.: Cuenca del Paraguay].
 1981 *Zilchiopsis sattleri*, — RODRIGUEZ, Aquat. Biota trop. South America, 1: 48 [part.: Paraguay].
 1992 *Zilchiopsis sattleri*, — RODRIGUEZ, Faune tropicale, 31: 106, figs. 3J, 4U, 5I, 7I, 9J, 13H, 37A-H. [non *Zilchiopsis sattleri* BOTT 1969].

Holotype: ♂ (UZM), Paraguay: Rio Paraguay ved. Riacho del Oro, leg. W. SØRENSEN.

Paratype: 1 ♀ (UZM), data as holotype.

Material: Brazil: Estado do Amazonas: 1 ♂ (MNRJ MD-1217), Parintins, 14.X.1984, leg. F. MATOS & M. FERNANDA; 1 ♂ (MNRJ MD-1188), Humaitá, 9.VI.1975, leg. A. MONTAVAN. — Estado do Pará: 1 ♂ (INPA-CR 143), Rio Amazonas, near Óbidos, IX.1983, leg. R. BARTHEN; 1 ♂ (ZMH K-27047), 1 ♂ (SMF 4889), Lago Grande de Santarém, I.1957, leg. A. MESCHKAT.



Fig. 54. *Zilchiopsis cryptodus* (holotype, MZVS), dorsal and ventral aspect.

— Estado de Rondônia: 9 ♂ 5 ♀ with youngs (MNRJ MD-1201), Rio Pregão, BR-470, Km 58, Ouro Preto do Oeste, XI.1983, leg. A.D. CERUTTI; 4 ♂ 5 ♀ (MNRJ MD-1290), Rio Paieiro, Ouro Preto do Oeste, 14.VII.1986, leg. W. ZWINK; 3 ♂ 1 ♀ (MNRJ MD-1301), Rio do Roppa, Ouro Preto do Oeste, 14.VII.1986, leg. W. ZWINK; 1 ♂ (MNRJ MD-1304), Rio São Domingos, Ouro Preto do Oeste, 12.VII.1986, leg. W. ZWINK; 4 ♂ 2 ♀ (MNRJ MD-1293), 1 ♂ 1 ♀ (SMF 22243), Igarapé do Miolo, BR-364, Km 111, between Ouro Preto do Oeste and Ji-Paraná, 16.VII.1986, leg. W. ZWINK; 1 ♂ (MNRJ MD-1287), Igarapé do Leitão, BR-364, Km 312, Presidente Médici, 16.VII.1986, leg. W. ZWINK; 1 ♂ (INPA-CR 555), Rio Novo, BR-174, 2.X.1984, leg. V. PY-DANIEL e colab.; 1 ♂ (MZUSP 9157), Rio Guaporé, near Surpresa, 22.IX.1985, leg. J. C. MALTA. — Estado do Mato Grosso: 1 ♂ 1 ♀ (MNRJ MD-1218), Córrego Areia, Rio Juina, 19.IV.1985, leg. J. AUGUSTO & ROPPA; 2 ♂ (SMF 22244), Rio Sararé, Tributary of Rio Guaporé, 35 Km ENE Vila Bela [= Mato Grosso], 13.VIII.1980, leg. J. VOELKER.

Bolivia: Depto. Beni: 1 ♂ (AMNH); 2 ♂ (MNHNB), Rio Yacuma, Espiritu, Prov. Yacuma, 14°08'S 66°24'W, 224 m, Cuenca Rio Madeira, 14.IV.1987, leg. J. SARMIENTO & W. HANAGARTH; 1 ♂ 1 ♀ (MNHNB B-12815), 3 ♂ 4 ♀ (MNHNB B-19122), Trinidad, VII.1984–V.1985, leg. G. LOUBENS.

Paraguay: 1 ♂ (MZUT Cr-282), [?] 1 ♀ (MZUT Cr-281), Rio Apa, 1893, don. BORELLI; 3 ♂ 1 ♀ (NHMB 553a), Rio Paraguay, Apa-lué; [?] 1 ♂ 1 ♀, paratypes of *Zilchiopsis sattleri* BOTT (ZMH K-3628), Chaco, Rio Paraguay; 1 ♂, dry (USNM 234456), Rio Paraguay, Chaco, about 250 miles upriver from Asunción, don. M. CODY; 1 ♂ 1 ♀ (MACN 16514), Rio Paraguay, Asunción, VI.1926, leg. G. FRANCESCHI; 2 ♂ 1 ♀ (NHMB 553b), Villeta, Colonia Nova Italia, 1939, Vend. P. WILLIN.

Without precise locality: 1 ♀ (USNM 20093), Rio Paraguay, near Riacho del Oro, leg. Dr. W. SØRENSEN (from Mus. Copenhagen); 1 ♂ (MACN 29236), Riacho "Paloma", off Isla Montanel, I.1976, leg. M. QUINTANA.

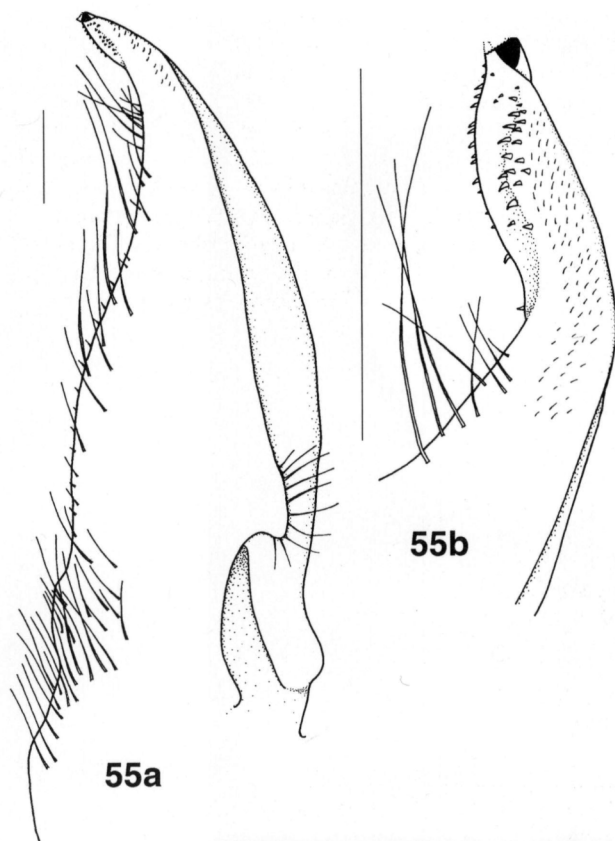


Fig. 55. *Zilchiopsis cryptodus* (holotype, MZVS), right male plp 1, ventral aspect. — Scale 1 mm.

Diagnosis: Carapace subcircular, clearly convex in both directions, regions well delimited. Male plp 1 bent following a regular curve, distal end extending beyond subterminal spine field, its length relatively short about half the length of the spine field.

Measurements: 39.0 : 33.4 : 20.7 : 15.0 (holotype ♂).

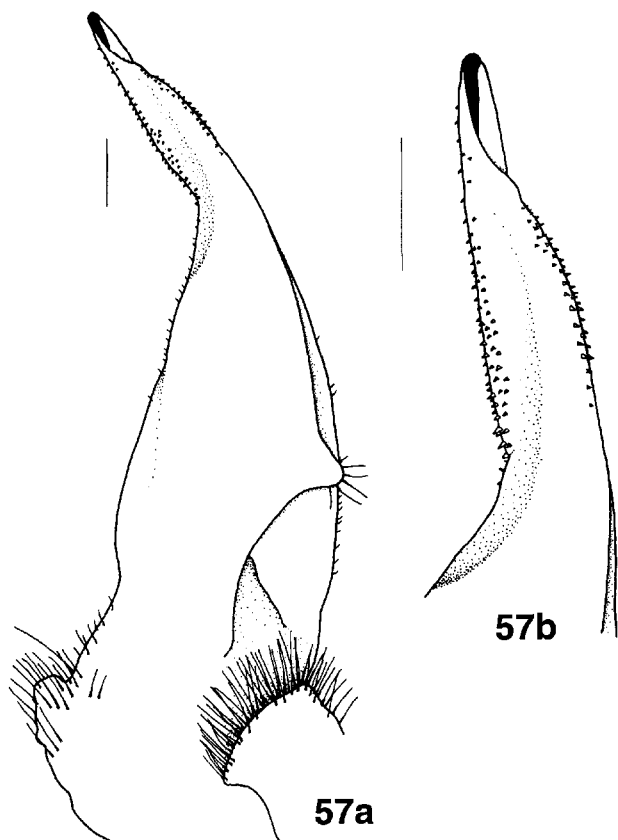
Type locality: [Country unknown, probably Argentina], Rio Paraguay, Riacho del Oro.

Distribution: Probably a tropical species occurring in northern Paraguay, Bolivia and Brazil, southern limits unknown, probably in northern Argentina.

Remarks: As stated above, the present species is probably the tropical counterpart of *Z. collastinensis*. This is strongly suggested by the abundant Brazilian material that we were able to examine. However, the type locality is not clear in this respect, as the Rio Paraguay is a large and long river and the Riacho del Oro too small to be detected on most maps. Furthermore, SØRENSEN's report does not give



Fig. 56. *Zilchiopsis oronensis* (holotype, UZM), dorsal and ventral aspect. — Scale 20 mm.



any hints other than he collected in northern Argentina (T. WOLFF 1989 in litt. to C. MAGALHÃES). RODRIGUEZ (1992: 164) gave a more precise interpretation of the locality ["Rio de Oro, Argentina, Chaco, river running parallel to Rio Bermejo and joining Rio Paraguay at approximately 40 km N of Resistencia, 27°S 56°30'W"]. There is, however, no indication where this information comes from and the coordinates refer to a place in the Paraguayan province Misiones rather than to the area of the Rio Bermejo. Nevertheless the holotype has the typical pleopod, that we also met with in our Brazilian specimens, so that no doubt can arise concerning its identity.

Fig. 57. *Zilchiopsis oronensis* (holotype, UZM), right male plp 1, mesial aspect. — Scale 1 mm.

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