

POTI GAUCHO, A NEW GENUS AND SPECIES OF
GHOST SHRIMP FROM SOUTHERN BRAZIL
(CRUSTACEA: DECAPODA: CALLIANASSIDAE)

Sergio de A. Rodrigues and Raymond B. Manning

ABSTRACT

The genus *Poti* and its unique type species *P. gaucho* can be distinguished from all known callianassid genera by the presence of an incomplete linea thalassinica.

Among the previously unstudied callianassids available to the senior author are a male and female taken at a depth of 150 m near the Brazil/Uruguay border during a survey conducted by the Fundação Universidade do Rio Grande. The specimens represent an undescribed species that cannot be referred to any of the known callianassid genera; they are assigned below to a new genus and species.

The holotype has been deposited in the Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil (MZUSP) and the paratype is in the collection of the National Museum of Natural History, Smithsonian Institution, Washington (USNM).

Carapace length (cl) is postorbital carapace length in millimeters (mm). Abbreviations used include: A1, antennule; A2, antenna; leg, collector; m, meters; Mxp1-3, first to third maxillipeds; P1-5, pereopods 1-5; Plp1-5, pleopods 1-5.

Poti new genus

Definition.—Carapace with dorsal oval and short rostral spine, lacking cardiac prominence and rostral carina. Anterior margin of carapace with rostral spine only. Linea thalassinica indistinct, not extending to posterior margin of carapace. Eye flattened, cornea basal, indistinct. A2 peduncle longer than A1 peduncle; antennal scale vestigial. Segment 3 of A1 peduncle about twice as long as segment 2. Mxp3 subpediform (ischium-merus length about twice width), without exopod; ischium slightly narrower than merus; merus wider than long, almost twice as wide as propodus, distal margin not projecting beyond articulation with propodus, unarmed; carpus and propodus longer than wide, propodus only slightly longer than digitiform dactylus. Major cheliped unknown, minor cheliped lacking meral hook or spine in female. Abdomen lacking distinctive pattern from subcutaneous glands dorsally on somites 3-5, somite 2 about as long as somite 6. Plp1-2 different from Plp3-5, present in both sexes; Plp1 slender and uniramous, Plp2 slender and biramous, Plp3-5 foliaceous and biramous in both sexes; male Plp2 without appendix masculina; in both sexes, appendices internae absent on Plp1-2, present on Plp3-5, stubby, projecting, extending beyond margin of endopod. Uropodal exopod longer than wide, dorsal plate proximally incomplete, lateral incision absent; uropodal endopod oval, narrowing distally, length less than twice width.

Type Species.—*Poti gaucho*, new species, described below. The genus is monotypic.

Etymology.—The generic name is formed from the word poti, shrimp or shrimp-like animal, from the Tupy-Guarani language of South America (see Holthuis, 1991, for use of the name in the 17th century). The gender is masculine.

Remarks.—This new genus differs from all known callianassid genera (De Saint

Laurent, 1973, 1979; Manning and Felder, 1986; Manning, 1987; Sakai, 1987) in having an incomplete linea thalassinica. A genus named by and assigned to the Callianassidae by Borradaile (1903:545), *Calliactites*, also appears to lack the linea thalassinica. It was removed from the Callianassidae by De Saint Laurent (1973:515) and placed in the Callianideidae. The original figure of the type species of *Calliactites*, *Callianassa securo* Lanchester (1901: pl. 34, fig. 2) shows that *Calliactites* has Plp2-5 (rather than the normal Plp3-5) foliaceous, so *Calliactites*, if it proves to be a callianassid, can be distinguished from *Poti* on that feature alone.

Poti gaucho new species

Figure 1

Material.—Brazil: off Chui, near the border between Brazil and Uruguay, 33°43'S, 51°13'W, depth 150 m, Fundação Universidade do Rio Grande, cruise St 3-11, F. Dincao leg, 1♂, cl 4.0 mm (paratype, USNM 256376), 1♀, cl 3.3 mm (holotype, MZUSP 10581).

Description.—Rostrum triangular, about as long as wide, extending slightly beyond midlength of eyes, apex deflexed slightly. Frontal margin of carapace with small rounded projection laterally between end of linea thalassinica and rostrum, with 2 setae on projection. Linea thalassinica indistinct, almost invisible, not reaching posterior margin of carapace. Cervical groove distinct, delimiting posterior margin of dorsal oval. Abdominal somites smooth; somite 1 smallest, saddle-like, somites 2 and 6 longer than somites 3-5. Telson smooth, slightly longer than wide, without teeth or spines.

Eyes reaching end of basal segment of A1 peduncle, external and internal margins converging on rounded tip; cornea represented by scattered spots of dark pigment basally; a spot of yellow pigment present ahead of cornea. A1 peduncle reaching distal extremity of penultimate segment of A2 peduncle, segment 3 of A1 peduncle as long as segments 1 and 2 combined; antennular flagella about the same length as peduncle. Segment 4 of A2 almost twice as long as segment 3; antennal scale minute; antennal flagellum absent in both specimens.

Mandible with 7 teeth on cutting edge; molar process with 2 teeth; mandibular palp 3-segmented, third article longest, bearing numerous stiff setae on outer surface. Maxillule with protopodal endites rounded, palp slender, unsegmented. Maxilla with protopodal endites bilobed; scaphognathite with anterior lobe rounded and posterior lobe truncated, margin fringed with medium-sized setae. Mxp1 with vestigial palp, endopod unsegmented, lacking flagellum; epipod produced anteriorly and posteriorly into slender projection. Mxp2 with endopod pediform, 5-segmented; exopod unsegmented, without flagellum, about as long as endopodal ischium, distal portion bearing plumose setae. Mxp3 with ischium and merus relatively elongate, subpediform (ischium longer than wide), ischial crest with about 17 teeth; distal margin of merus longer than proximal; carpus and propodus about the same length and width, wider than slender dactylus.

Branchial formula as follows:

	Maxillipeds			Pereopods				
	1	2	3	1	2	3	4	5
Pleurobranches	-	-	-	-	-	-	-	-
Arthrobranches	-	1	2	2	2	2	2	-
Podobranche	-	-	-	-	-	-	-	-
Epipods	1	1	-	-	-	-	-	-
Exopods	1	1	-	-	-	-	-	-

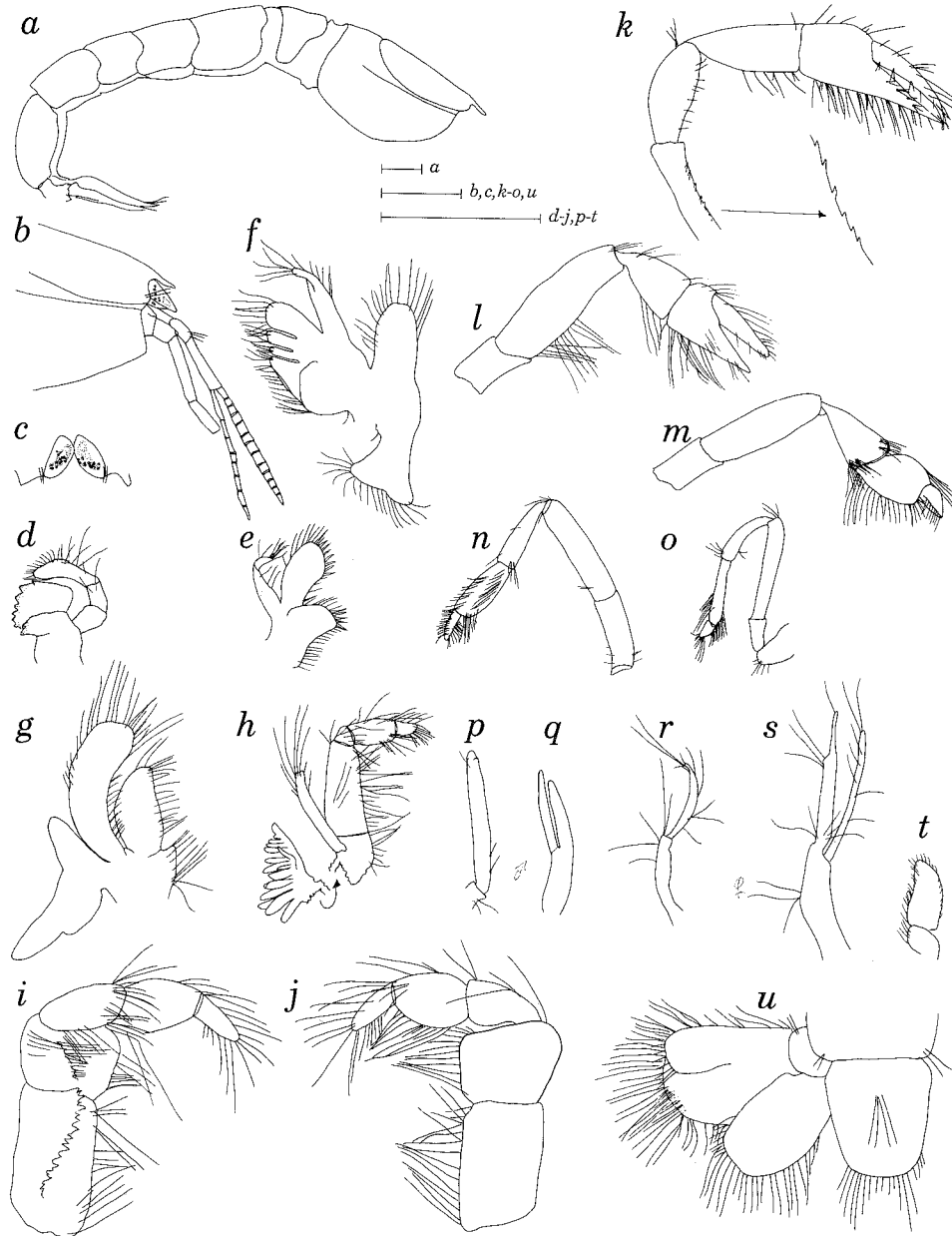


Figure 1. *Poti gaucho*, n. gen., n. sp. a–q, u, male paratype, carapace length 4.0 mm; r–t female holotype, carapace length 3.3 mm. a, body, lateral view; b, frontal region, lateral view; c, front and eyes, dorsal view; d, mandible; e, maxillule; f, maxilla; g, Mxp1; h, Mxp2; i, Mxp3, inner face; j, Mxp3, outer face; k, P1 (minor cheliped); l, P2; m, P3; n, P4; o, P5; p, male Plp1; q, male Plp2; r, female Plp1; s, female Plp2; t, female Plp3; u, telson and uropod. Scales = 1.0 mm.

Both first chelipeds of male paratype and right cheliped of female holotype lost. Left first cheliped of holotype with 6 teeth on posterior margin of ischium; merus unarmed, about as long as carpus and ischium; carpus widening distally; palm shorter than carpus; fingers longer than palm, slender and unarmed, tip of dactylus

curved. P2 chelate, fingers not gaping. Third legs with ischium and merus of same width; carpus widening distally; propodus about as long as wide, posterior margin lacking lobe, tapering towards dactylus; latter about twice as long as broad. Fourth and fifth legs with slender, subcylindrical joints; propodus and dactylus with dense pilose tufts forming typical grooming apparatus.

Plp1 of male uniramous and unjointed, with a few short setae. Plp2 of male biramous, naked; endopod and exopod almost of same length; appendix interna and appendix masculina absent. Plp1 of female uniramous, 2-jointed; segments of about the same length, with sparse long setae. Plp2 of female biramous, longer than Plp1; endopod and exopod of about the same length; distal extremity of endopod tapering into slender lobe; appendix interna absent. Plp3–5 alike, exopods and endopods foliaceous; endopods with stubby appendix interna projecting from mid-portion of inner margin.

Uropods about as long as telson; exopod distinctly longer than wide, without lateral notch; dorsal plate slightly shorter than ventral, incomplete proximally; endopod with greatest width at midlength, distal margin rounded.

Remarks.—Only three other species of callianassids have been recorded from the southern Atlantic coast of South America: *Anacalliax argentinensis* (Biffar, 1971) (Biffar, 1971; Vinuesa, 1974; Boschi, 1979; Ferrari, 1981), *Callianassa brachyophthalma* Milne Edwards, 1870 (Ferrari, 1981), and *Neocallichirus mirim* (Rodrigues, 1971) (Ferrari, 1981; Rodrigues, 1983; Gianuca, 1983; Coelho and Ramos-Porto, 1987). Two of these, *C. brachyophthalma* and *N. mirim*, are shore species and *A. argentinensis* occurs from shore to a depth of 50 m.

Etymology.—The specific name is from the Araucan Amerindian language, gaucho, wanderer, originally used for a cowboy or herdsman of the Pampas. The term is now used to designate the natives of that region (Rio Grande do Sul, Uruguay and Argentina).

ACKNOWLEDGMENTS

We thank F. Dincao, Fundação Universidade do Rio Grande, Brazil, for allowing us to work with these specimens. The Smithsonian Office of Fellowships and Grants provided the support for a visit by one of us (S.A.R.) to Washington, and this support is gratefully acknowledged. The final figures were inked and prepared for publication by M. Erwin. Marcos S. Tavares provided the derivation of the generic name. This is contribution No. 293 from the Smithsonian Marine Station at Link Port.

LITERATURE CITED

- Biffar, T. A. 1971. New species of *Callianassa* (Decapoda, Thalassinidea) from the western Atlantic. *Crustaceana* 21(3): 225–236.
- Borradaile, L. A. 1903. On the classification of the Thalassinidea. *Ann. Mag. Nat. Hist.* (7)12: 534–551.
- Boschi, E. E. 1979. Geographic distribution of Argentinian marine decapod crustaceans. *Bull. Biol. Soc. Wash.* 3: 134–143.
- Coelho, P. A. and M. Ramos-Porto. 1987. Sinopse dos Crustáceos Decápodos Brasileiros (Famílias Callianassidae, Callianideidae, Upogebiidae, Parapaguridae, Paguridae, Diogenidae). *Trab. Oceanogr., Univ. Fed. Pernambuco, Recife* 19(1985/86): 27–53.
- Ferrari, L. 1981. Aportes para el conocimiento de la familia Callianassidae (Decapoda, Macrura) en el Oceano Atlantico sudoccidental. *Physis, Buenos Aires* (A)39: 11–21.
- Gianuca, N. M. 1983. A preliminary account of the ecology of sandy beaches in southern Brazil. Pages 413–419 in A. McLachlan and T. Erasmus, eds. *Sandy beaches as ecosystems* (Developments in Hydrobiology, 19). W. Junk, The Hague.
- Holthuis, L. B. 1991. Marcgraf's (1648) Brazilian Crustacea. *Zool. Verhand., Leiden* 268: 1–123.
- Lanchester, W. F. 1901. Brachyura, Stomatopoda, and Macrura. On the Crustacea collected during the "Skeat Expedition" to the Malay Peninsula, together with a note on the genus *Actaeopsis*, Part 1. *Proc. Zool. Soc. Lond.* 2: 534–574, pls. 33, 34.

- Manning, R. B. 1987. Notes on western Atlantic Callianassidae (Crustacea: Decapoda: Thalassinidea). *Proc. Biol. Soc. Wash.* 100(2): 386-401.
- and D. L. Felder. 1986. The status of the callianassid genus *Callichirus* Stimpson, 1866 (Crustacea: Decapoda: Thalassinidea). *Proc. Biol. Soc. Wash.* 99(3): 437-443.
- Milne Edwards, A. 1870. Révision du genre *Callianassa* (Leach). *Nouv. Arch. Mus. Hist. nat., Paris* 6: 75-101, pls. 1, 2.
- Rodrigues, S. de A. 1971. Mud shrimps of the genus *Callianassa* Leach from the Brazilian coast (Crustacea, Decapoda). *Arq. Zool., S. Paulo* 20(3): 191-223.
- . 1983. Aspectos da Biologia de Thalassinidea do Atlântico tropical Americano. 174 pp. Unpublished thesis, Universidade de São Paulo, Brazil.
- Saint Laurent, M. de. 1973. Sur la systématique et la phylogénie des Thalassinidea: définition des familles des Callianassidae et des Upogebiidae et diagnose de cinq genres nouveaux (Crustacea Decapoda). *C.R. Hebd. Acad. Sci., Paris (D)*277: 513-516.
- . 1979. Sur la classification et la phylogénie des Thalassinides: définitions de la superfamille des Axioidea, de la sous-famille des Thomasiniinae et de deux genres nouveaux (Crustacea Decapoda). *C.R. Hebd. Acad. Sci., Paris (D)*288: 1395-1397.
- Sakai, K. 1987. A new genus and five new species of Callianassidae (Crustacea: Decapoda: Thalassinidea) from northern Australia. *The Beagle, Rec. N. Terr. Mus. Arts Sci.* 5(1): 51-69.
- Vinuesa, J. H. 1974. Observaciones sobre la distribución de crustáceos decápodos reptantes en la ría de Puerto Deseado (Santa Cruz, Argentina). *Physis, Buenos Aires (A)*33: 433-441.

DATE ACCEPTED: September 20, 1991.

ADDRESSES: (S.A.R.) Instituto de Biociencias, Universidade de São Paulo, Caixa Postal 11461, 05499 São Paulo, Brazil; (R.B.M.) Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.

Laurent, 1973, 1979; Manning and Felder, 1986; Manning, 1987; Sakai, 1987) in having an incomplete linea thalassinica. A genus named by and assigned to the Callianassidae by Borradaile (1903:545), *Calliactites*, also appears to lack the linea thalassinica. It was removed from the Callianassidae by De Saint Laurent (1973:515) and placed in the Callianideidae. The original figure of the type species of *Calliactites*, *Callianassa securo* Lanchester (1901: pl. 34, fig. 2) shows that *Calliactites* has Plp2-5 (rather than the normal Plp3-5) foliaceous, so *Calliactites*, if it proves to be a callianassid, can be distinguished from *Poti* on that feature alone.

***Poti gaucho* new species**

Figure 1

Material.—Brazil: off Chui, near the border between Brazil and Uruguay, 33°43'S, 51°13'W, depth 150 m, Fundação Universidade do Rio Grande, cruise St 3-11, F. Dincao leg. 1♂, cl 4.0 mm (paratype, USNM 256376), 1♀, cl 3.3 mm (holotype, MZUSP 10581).

Description.—Rostrum triangular, about as long as wide, extending slightly beyond midlength of eyes, apex deflexed slightly. Frontal margin of carapace with small rounded projection laterally between end of linea thalassinica and rostrum, with 2 setae on projection. Linea thalassinica indistinct, almost invisible, not reaching posterior margin of carapace. Cervical groove distinct, delimiting posterior margin of dorsal oval. Abdominal somites smooth; somite 1 smallest, saddle-like, somites 2 and 6 longer than somites 3-5. Telson smooth, slightly longer than wide, without teeth or spines.

Eyes reaching end of basal segment of A1 peduncle, external and internal margins converging on rounded tip; cornea represented by scattered spots of dark pigment basally; a spot of yellow pigment present ahead of cornea. A1 peduncle reaching distal extremity of penultimate segment of A2 peduncle, segment 3 of A1 peduncle as long as segments 1 and 2 combined; antennular flagella about the same length as peduncle. Segment 4 of A2 almost twice as long as segment 3; antennal scale minute; antennal flagellum absent in both specimens.

Mandible with 7 teeth on cutting edge; molar process with 2 teeth; mandibular palp 3-segmented, third article longest, bearing numerous stiff setae on outer surface. Maxillule with protopodal endites rounded, palp slender, unsegmented. Maxilla with protopodal endites bilobed; scaphognathite with anterior lobe rounded and posterior lobe truncated, margin fringed with medium-sized setae. Mxp1 with vestigial palp, endopod unsegmented, lacking flagellum; epipod produced anteriorly and posteriorly into slender projection. Mxp2 with endopod pediform, 5-segmented; exopod unsegmented, without flagellum, about as long as endopodal ischium, distal portion bearing plumose setae. Mxp3 with ischium and merus relatively elongate, subpediform (ischium longer than wide), ischial crest with about 17 teeth; distal margin of merus longer than proximal; carpus and propodus about the same length and width, wider than slender dactylus.

Branchial formula as follows:

	Maxillipeds			Pereopods				
	1	2	3	1	2	3	4	5
Pleurobranchs	-	-	-	-	-	-	-	-
Arthrobranchs	-	1	2	2	2	2	2	-
Podobranchs	-	-	-	-	-	-	-	-
Epipods	1	1	-	-	-	-	-	-
Exopods	1	1	-	-	-	-	-	-

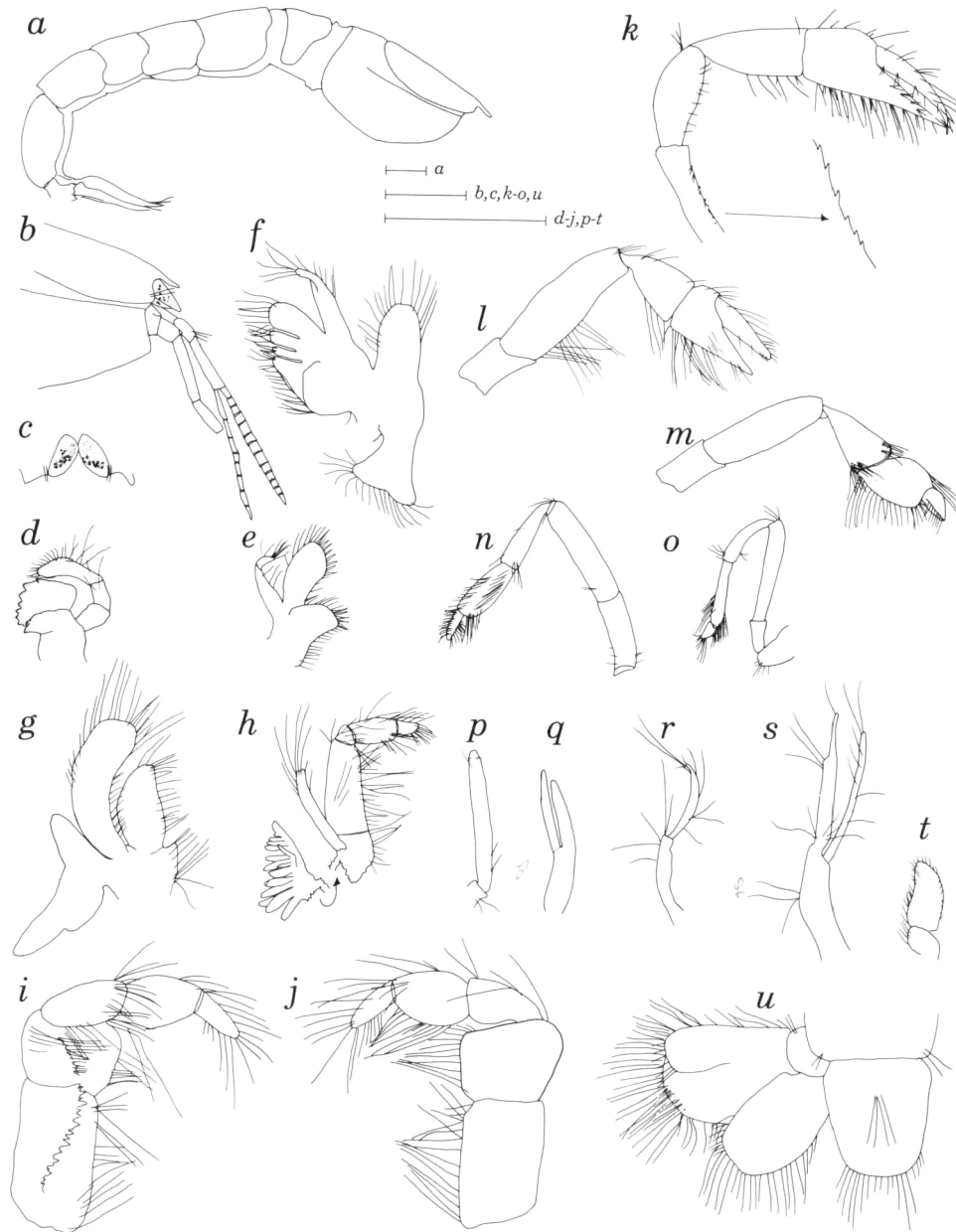


Figure 1. *Poti gaucho*, n. gen., n. sp. a–q, u, male paratype, carapace length 4.0 mm; r–t female holotype, carapace length 3.3 mm. a, body, lateral view; b, frontal region, lateral view; c, front and eyes, dorsal view; d, mandible; e, maxillule; f, maxilla; g, Mxp1; h, Mxp2; i, Mxp3, inner face; j, Mxp3, outer face; k, P1 (minor cheliped); l, P2; m, P3; n, P4; o, P5; p, male Plp1; q, male Plp2; r, female Plp1; s, female Plp2; t, female Plp3; u, telson and uropod. Scales = 1.0 mm.

Both first chelipeds of male paratype and right cheliped of female holotype lost. Left first cheliped of holotype with 6 teeth on posterior margin of ischium; merus unarmed, about as long as carpus and ischium; carpus widening distally; palm shorter than carpus; fingers longer than palm, slender and unarmed, tip of dactylus

curved. P2 chelate, fingers not gaping. Third legs with ischium and merus of same width; carpus widening distally; propodus about as long as wide, posterior margin lacking lobe, tapering towards dactylus; latter about twice as long as broad. Fourth and fifth legs with slender, subcylindrical joints; propodus and dactylus with dense pilose tufts forming typical grooming apparatus.

Plp1 of male uniramous and unjointed, with a few short setae. Plp2 of male biramous, naked; endopod and exopod almost of same length; appendix interna and appendix masculina absent. Plp1 of female uniramous, 2-jointed; segments of about the same length, with sparse long setae. Plp2 of female biramous, longer than Plp1; endopod and exopod of about the same length; distal extremity of endopod tapering into slender lobe; appendix interna absent. Plp3–5 alike, exopods and endopods foliaceous; endopods with stubby appendix interna projecting from mid-portion of inner margin.

Uropods about as long as telson; exopod distinctly longer than wide, without lateral notch; dorsal plate slightly shorter than ventral, incomplete proximally; endopod with greatest width at midlength, distal margin rounded.

Remarks.—Only three other species of callianassids have been recorded from the southern Atlantic coast of South America: *Anacalliax argentinensis* (Biffar, 1971) (Biffar, 1971; Vinuesa, 1974; Boschi, 1979; Ferrari, 1981), *Callianassa brachyophthalma* Milne Edwards, 1870 (Ferrari, 1981), and *Neocallichirus mirim* (Rodrigues, 1971) (Ferrari, 1981; Rodrigues, 1983; Gianuca, 1983; Coelho and Ramos-Porto, 1987). Two of these, *C. brachyophthalma* and *N. mirim*, are shore species and *A. argentinensis* occurs from shore to a depth of 50 m.

Etymology.—The specific name is from the Araucan Amerindian language, gaucho, wanderer, originally used for a cowboy or herdsman of the Pampas. The term is now used to designate the natives of that region (Rio Grande do Sul, Uruguay and Argentina).

ACKNOWLEDGMENTS

We thank F. Dincao, Fundação Universidade do Rio Grande, Brazil, for allowing us to work with these specimens. The Smithsonian Office of Fellowships and Grants provided the support for a visit by one of us (S.A.R.) to Washington, and this support is gratefully acknowledged. The final figures were inked and prepared for publication by M. Erwin. Marcos S. Tavares provided the derivation of the generic name. This is contribution No. 293 from the Smithsonian Marine Station at Link Port.

LITERATURE CITED

- Biffar, T. A. 1971. New species of *Callianassa* (Decapoda, Thalassinidea) from the western Atlantic. *Crustaceana* 21(3): 225–236.
- Borradaile, L. A. 1903. On the classification of the Thalassinidea. *Ann. Mag. Nat. Hist.* (7)12: 534–551.
- Boschi, E. E. 1979. Geographic distribution of Argentinian marine decapod crustaceans. *Bull. Biol. Soc. Wash.* 3: 134–143.
- Coelho, P. A. and M. Ramos-Porto. 1987. Sinopse dos Crustáceos Decápodos Brasileiros (Famílias Callianassidae, Callianideidae, Upogebiidae, Parapaguridae, Paguridae, Diogenidae). *Trab. Oceanogr., Univ. Fed. Pernambuco, Recife* 19(1985/86): 27–53.
- Ferrari, L. 1981. Aportes para el conocimiento de la familia Callianassidae (Decapoda, Macrura) en el Oceano Atlantico sudoccidental. *Physis, Buenos Aires* (A)39: 11–21.
- Gianuca, N. M. 1983. A preliminary account of the ecology of sandy beaches in southern Brazil. Pages 413–419 in A. McLachlan and T. Erasmus, eds. *Sandy beaches as ecosystems* (Developments in Hydrobiology, 19). W. Junk, The Hague.
- Holthuis, L. B. 1991. Marcgraf's (1648) Brazilian Crustacea. *Zool. Verhand., Leiden* 268: 1–123.
- Lanchester, W. F. 1901. Brachyura, Stomatopoda, and Macrura. On the Crustacea collected during the "Skeat Expedition" to the Malay Peninsula, together with a note on the genus *Actaeopsis*, Part 1. *Proc. Zool. Soc. Lond.* 2: 534–574, pls. 33, 34.

- Manning, R. B. 1987. Notes on western Atlantic Callianassidae (Crustacea: Decapoda: Thalassinidea). Proc. Biol. Soc. Wash. 100(2): 386–401.
- and D. L. Felder. 1986. The status of the callianassid genus *Callichirus* Stimpson, 1866 (Crustacea: Decapoda: Thalassinidea). Proc. Biol. Soc. Wash. 99(3): 437–443.
- Milne Edwards, A. 1870. Révision du genre *Callianassa* (Leach). Nouv. Arch. Mus. Hist. nat., Paris 6: 75–101, pls. 1, 2.
- Rodrigues, S. de A. 1971. Mud shrimps of the genus *Callianassa* Leach from the Brazilian coast (Crustacea, Decapoda). Arq. Zool., S. Paulo 20(3): 191–223.
- . 1983. Aspectos da Biologia de Thalassinidea do Atlântico tropical Americano. 174 pp. Unpublished thesis, Universidade de São Paulo, Brazil.
- Saint Laurent, M. de. 1973. Sur la systématique et la phylogénie des Thalassinidea: définition des familles des Callianassidae et des Upogebiidae et diagnose de cinq genres nouveaux (Crustacea Decapoda). C.R. Hebd. Acad. Sci., Paris (D)277: 513–516.
- . 1979. Sur la classification et la phylogénie des Thalassinides: définitions de la superfamille des Axioidea, de la sous-famille des Thomasiniinae et de deux genres nouveaux (Crustacea Decapoda). C.R. Hebd. Acad. Sci., Paris (D)288: 1395–1397.
- Sakai, K. 1987. A new genus and five new species of Callianassidae (Crustacea: Decapoda: Thalassinidea) from northern Australia. The Beagle, Rec. N. Terr. Mus. Arts Sci. 5(1): 51–69.
- Vinuesa, J. H. 1974. Observaciones sobre la distribución de crustáceos decápodos reptantes en la ría de Puerto Deseado (Santa Cruz, Argentina). Physis, Buenos Aires (A)33: 433–441.

DATE ACCEPTED: September 20, 1991.

ADDRESSES: (S.A.R.) Instituto de Biociencias, Universidade de São Paulo, Caixa Postal 11461, 05499 São Paulo, Brazil; (R.B.M.) Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.