



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 study<sup>1)</sup>. 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, Cameté, 22.IV.1986, leg. O. COLLART.

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

<sup>1)</sup> 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, Manacapuru, 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.

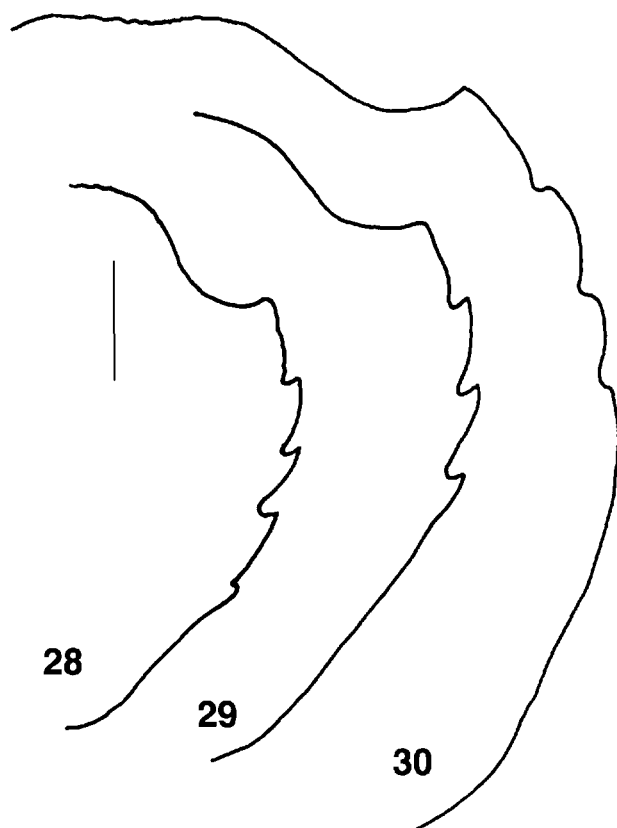
**Diagnosis:** Three or four anterolateral teeth behind the exorbital tooth of carapace. Abdomen with segments III–V fused. Male plp 1 without a subdistal lobe, subterminal spine fields confluent forming a very well developed area covering nearly the whole distal half of the appendage.

**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 cardiacal 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 torced back again near to the tip where it meets the terminally situated distal opening.

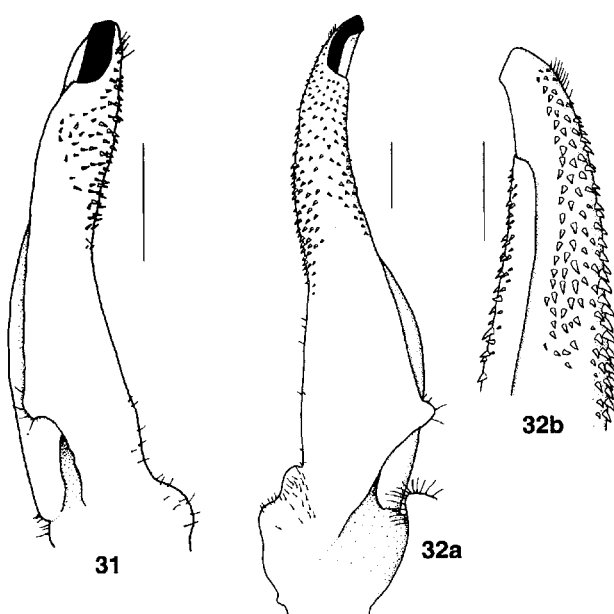
Measurements: 21.2 : 18.9 : 9.8 : 7.2 (holotype ♂)

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.

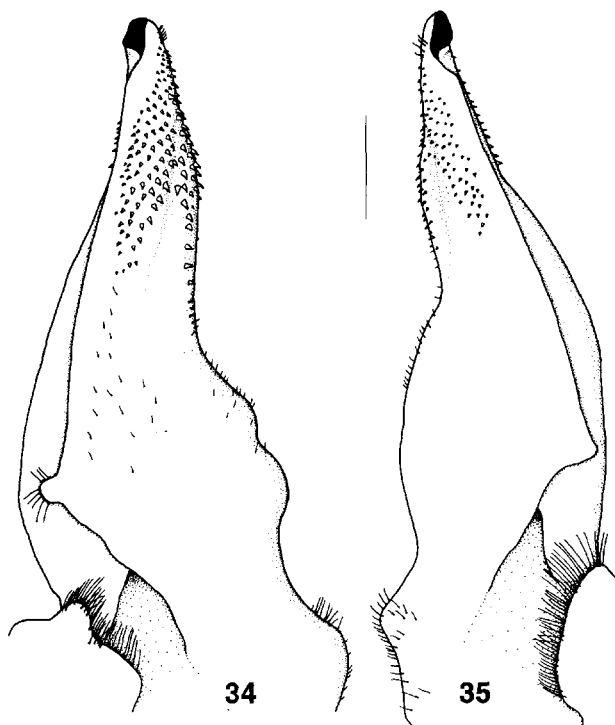
*Sylviocarcinus piriformis* (PRETZMANN 1968)

(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 Guanavana (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 Candelera (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].