

SYSTEMATICS, MORPHOLOGY AND PHYSIOLOGY

New Species of *Neotibilis* Grazia & Barcellos (Hemiptera: Pentatomidae: Pentatomini)¹JORGE L.C. BERNARDES^{2,4}, JOCÉLIA GRAZIA^{2,4} AND ALINE BARCELLOS³¹Contribution n° 474 of Depto. Zoologia, Universidade Federal do Rio Grande do Sul²Setor de Entomologia Sistemática, Depto. Zoologia, Instituto de Biociências, Univ. Federal do Rio Grande do Sul
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Neotropical Entomology 35(3):344-348 (2006)Novas Espécies de *Neotibilis* Grazia & Barcellos (Hemiptera: Pentatomidae: Pentatomini)

RESUMO - Três novas espécies de *Neotibilis* Grazia & Barcellos são descritas da Amazônia brasileira e do Equador, com base na morfologia geral e da genitália: *Neotibilis (Neotibilis) claviformis* sp. nov., *Neotibilis (Neotibilis) ecuadorensis* sp. nov. e *Neotibilis (Neotibilis) manauara* sp. nov. Ilustrações e uma chave para as espécies do subgênero *Neotibilis* são fornecidos. A distribuição conhecida de *Neotibilis* é ampliada, com novos registros para *N. (N.) biguttata* (Walker) – Brasil (Amazonas) e *N. (N.) chiapensis* (Thomas & Brailovsky) – Brasil (Roraima and Pará).

PALAVRAS-CHAVE: Taxonomia, *Tibilis*, morfologia, genitália, Neotropical

ABSTRACT - Three new species of *Neotibilis* Grazia & Barcellos are described from Brazilian Amazon region and Ecuador, based on general and genital morphology: *Neotibilis (Neotibilis) claviformis* sp. nov., *Neotibilis (Neotibilis) ecuadorensis* sp. nov. and *Neotibilis (Neotibilis) manauara* sp. nov. Illustrations and a key to species of the type subgenus are given. The range of *Neotibilis* is expanded, with new records for *N. (N.) biguttata* (Walker) – Brazil (Amazonas) and *N. (N.) chiapensis* (Thomas & Brailovsky) – Brazil (Roraima and Pará).

KEY WORDS: Taxonomy, *Tibilis*, morphology, genitalia, Neotropical

Neotibilis Grazia & Barcellos was described with two subgenera, *Neotibilis s. str.* and *Laeviscutis*, to include six species transferred from *Tibilis* Stål and one species revalidated, together with seven new species (Grazia & Barcellos 1994). The genus includes *N. (N.) biguttata* (Walker), *N. (N.) fulvicornis* (Walker), *N. (N.) parva* (Distant), *N. (L.) compascens* (Bergroth), *N. (L.) laeiventris* (Bergroth), *N. (L.) oculata* (Breddin), *N. (L.) piceolus* (Walker), *N. (L.) boliviana* Grazia & Barcellos, *N. (L.) lata* Grazia & Barcellos, *N. (L.) mourei* Grazia & Barcellos, *N. (L.) peruana* Grazia & Barcellos, *N. (N.) costaricensis* Grazia & Barcellos, *N. (N.) mexicana* Grazia & Barcellos and *N. (N.) panamensis* Grazia & Barcellos. Thomas & Brailovsky (1993) described *Tibilis chiapensis*, based on specimens from Chiapas, México. Grazia & Barcellos (1995) considered *N. (N.) mexicana* a junior synonym of *T. chiapensis*, establishing a new combination to *N. (N.) chiapensis* (Thomas & Brailovsky).

The genus is Neotropical, occurring mainly on the northwestern component of this region, ranging from lowlands of Mexico to Central Brazil (Amorim & Pires 1996). Additional geographical data to Grazia & Barcellos (1994) suggest that *N. (N.) parva*, *N. (N.) biguttata* e *N. (N.) chiapensis* are the species with the widest range of the genus.

Three new species from Amazon region belonging to the type subgenus are here described. Additionally, a new key to the species of the subgenus *Neotibilis* is presented.

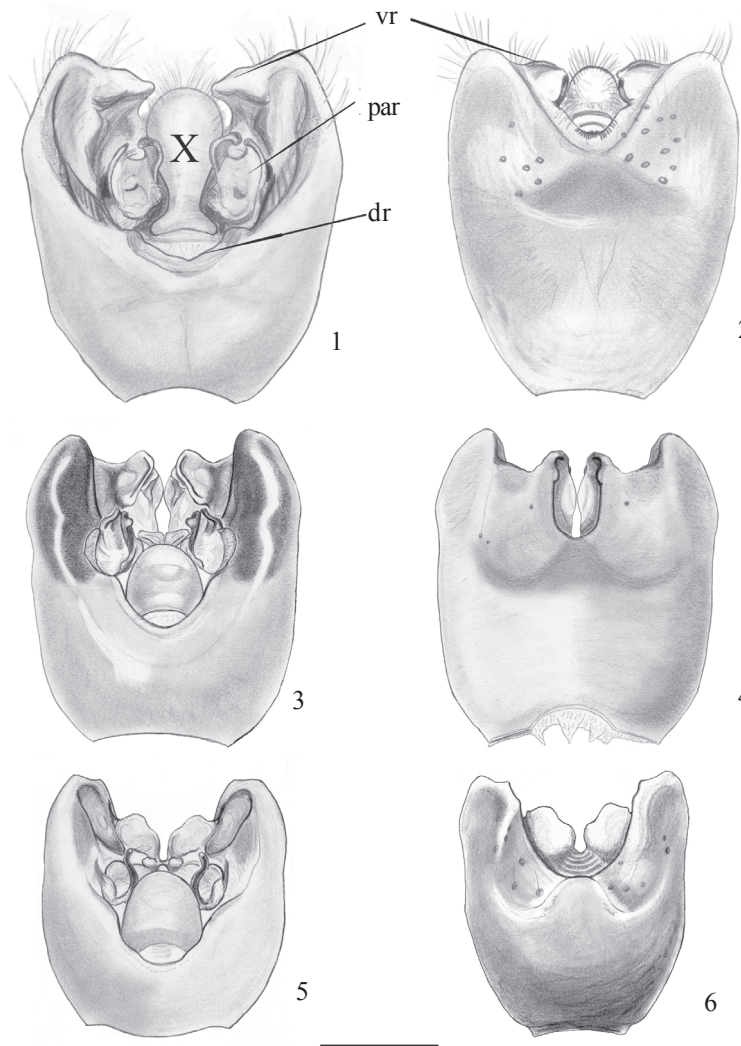
Material and Methods

The following collections are mentioned: Departamento de Zoologia, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brasil (DZRS); Instituto Nacional de Pesquisas da Amazônia, Manaus, Brasil (INPA); Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, Brasil (MCNZ); Museu Paraense Emílio Goeldi,

Belém, Brasil (MPEG) and Museo de Zoología de la Pontificia Universidad Católica del Ecuador, Quito, Ecuador (QCAZ). The amazonian specimens were collected with Malaise traps in the Reserve 1301, 60 km from Manaus, Amazonas, in the project of Biological Dynamics of Forest Fragments, collector Bert Klein. Measurements are given in millimeters and, were taken according to Grazia & Barcellos (1991). The species represented by a single specimen were not dissected. The terminology for genital characters followed Dupuis (1970), Barcellos & Grazia (1993) and Grazia & Barcellos (1994).

Key to the males of subgenus *Neotibilis* (modified from Grazia & Barcellos, 1994)

- | | |
|---|---|
| 1. Scutellum with a conspicuous yellowish callus at apex..... | <i>N. (N.) parva</i> (Distant, 1893) |
| 1'. Scutellum without apical callus..... | 2'. Ventral rim of pygophore with conspicuous laminar flaps..... |
| 2. Ventral rim of pygophore without laminar flaps (Fig. 12) |3 |
| | 3. Inner processes of ventral rim of pygophore hidden by proctiger, in dorsal view (Figs 1, 13)..... |
| | 3'. Inner processes of ventral rim of pygophore dorsally visible, not hidden by proctiger..... |
| |4 |
| | 4. Proctiger clavate well developed, almost touching the tooth like laminar flaps of ventral rim (Fig. 1, 2)..... |
| | <i>N. (N.) claviformis</i> sp. nov. |
| | 4'. Proctiger ovate, smaller than each paramere (Fig. 13)..... |
| | <i>N. (N.) chiapensis</i> (Thomas & Brailovsky, 1993) |
| | 5. Finger-like portion of parameres short, almost as long as auriculate portion (Figs 10, 14)..... |
| |6 |
| | 5'. Finger-like portion of parameres elongated, well surpassing the auriculate portion (Figs 5, 12, 13, 15-17)..... |
| |7 |
| | 6. Laminar flaps of ventral rim simple, not contiguous and |



Figs. 1-6. Pygophore dorsal and ventral views respectively. 1-2 *N. (N.) claviformis* sp. nov., 3-4, *N. (N.) ecuadorensis* sp. nov. 5-6, *N. (N.) manauara* sp. nov. (dr = dorsal rim; par = paramere; vr = ventral rim; X = proctiger). Scale 1mm.

not projected dorsad (Fig. 14).....
*N. (N.) panamensis* Grazia & Barcellos, 1994
 6'. Laminar flaps of ventral rim complex, divided into two portions, one dorsad, and another sagittally disposed. (Figs. 3, 4).....*N. (N.) ecuadorensis* sp. nov.
 7. Laminar flaps of ventral rim auriculate, concave dorsally; inner processes of ventral rim in 1+1 small tubercles (Figs. 5, 6).....*N. (N.) manauara* sp. nov.
 7'. Laminar flaps of ventral rim semi-auriculate (Figs. 15, 16).....8
 8. Inner processes of ventral rim triangular, well separated from each other (Fig. 16).....
*N. (N.) costaricensis* Grazia & Barcellos, 1994
 8'. Inner processes of ventral rim small, wing-like, contiguous basally (Fig. 15).....
*N. (N.) biguttata* (Walker, 1868)

***Neotibilis (Neotibilis) claviformis* sp. nov.**
 (Figs. 1, 2, 7-11)

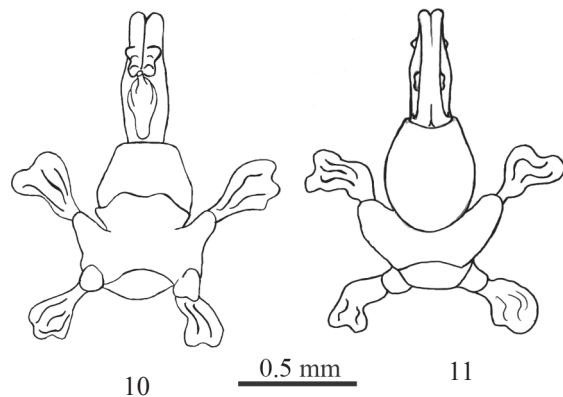
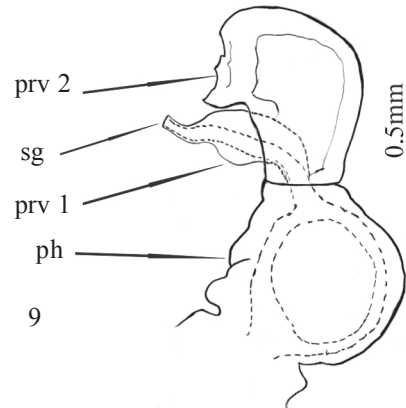
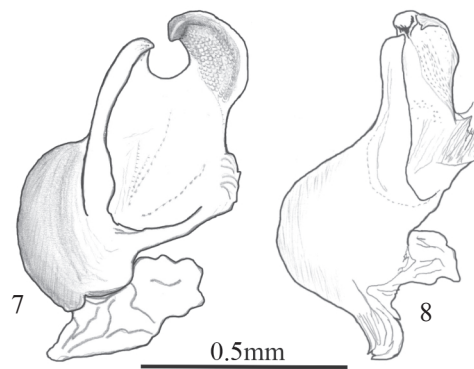
Type locality: Brazil, Amazonas, reserve 60 km from Manaus
 Type material. Holotype male, labeled: Bert Klein, 4/XII/85, R.1301, R.C.N.2 (INPA). Paratype male, labeled: Bert Klein, Res. 1301, R.C. S. 2, 18/XII/85 (MCNZ); paratype male, labeled: Bert Klein, 13/XI/85, 1301 – R.C.N.2 (DZRS)

Etymology. The name refers to the peculiar shape of X segment, in the pygophore.

General shape ovate. Dorsal surface dark castaneous. Jugae only slightly deflected dorsally. Antennae yellowish castaneous, punctures visible on first segment, less visible on second, and absent on remaining segments, which are pilose. Rostrum reaching mesocoxae. Pronotum coarsely punctured; anterolateral margins yellowish castaneous. Scutellum: basal angles with 1+1 yellowish gray to yellowish castaneous calli on basal angles; apex flat. Legs yellowish castaneous, with dark castaneous punctures on femora. Ventral surface of thorax regularly punctured on dark castaneous. Metasternal carina with a slight longitudinal sulcus. Abdominal venter yellowish castaneous; abdominal tubercle acute. Connexivum with a yellowish rounded spot over mesial third of each segment, along outer lateral margin.

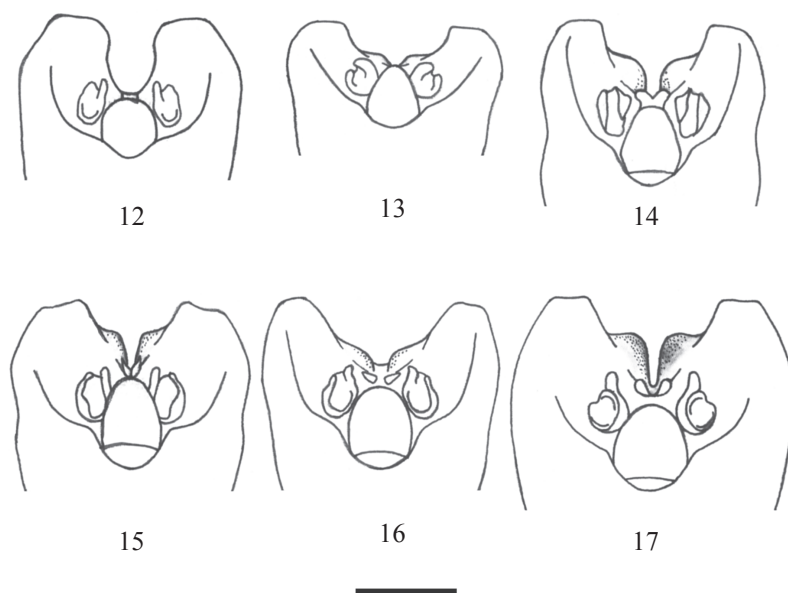
Male. Measurements (n = 3). Total length 11.96 (11.35-12.35); head length 1.77 (1.74-1.80); head width 2.50 (2.47-2.52); eye width 0.81 (0.77-0.82); interocular distance 0.88 (0.85-0.95); anteocular length 0.56 (0.53-0.58); length of antennal segments I- 0.91 (0.85-1.00), II- 1.12 (1.04-1.17), III- 1.78 (1.42-1.99); IV- 2.71 (2.58-2.85), V -2.60 (2.50-2.66); pronotum length 2.60 (2.53-2.65); pronotum width 6.50 (6.48-6.56); scutellum length 4.95 (4.68-5.10); scutellum width 3.82 (3.70-3.90); abdominal width 6.77 (6.72-6.96).

Pygophore (Figs. 1, 2) trapezoidal, widely open dorsally; dorsal rim sinuous, openly V-shaped along proctiger (Fig. 1). Proctiger elongated, clavate, rounded apically and strongly narrowed on basal half. Parameres (Figs. 7, 8) with finger-like portion little separated from the auriculate portion, partially superposed over proctiger; apex of both portions



Figs. 7-11. *N. (N.) claviformis* sp. nov. 7-8 parameres. 7, dorsal view of right paramere; 8, latero-external view of right paramere. 9-11 **Phallus**. 9, lateral view; 10, ventral view; 11, dorsal view (sg = secondary gonopore; ph = **phalloteca**; prv 1 = **processus vesicae** 1; prv 2 = **processus vesicae** 2).

convergent. Posterolateral angles rounded. Ventral rim openly U-shaped, leaving visible the laminar flaps of ventral rim and the proctiger, ventrally (Fig. 2). Laminar flaps in 1+1 tooth like projections, apices convergent to each other. Ventral inner processes of ventral rim hidden by the proctiger, not visible dorsally. *Phalloteca* (Figs. 9-11) globose, strongly sclerotized, without processes, apical margin rectilinear. *Processus vesicae* 1 arising close to the base of vesica, broad



Figs. 12-17. Pygophores, dorsal view. 12, *N. (N.) parva*; 13, *N. (N.) chiapensis*; 14, *N. (N.) panamensis*; 15, *N. (N.) biguttata*; 16, *N. (N.) costaricensis*; 17, *N. (N.) fulvicornis*. (from Grazia & Barcellos, 1994). Scale 1mm.

basally, distal third narrow; *ductus seminis distalis* truncate at apex. *Processus vesicae* 2 sclerotized, with two apical processes divided by a shallow sulcus; 1 + 1 sclerotized tubercles, above *processus vesicae* 1.

Female unknown.

Comments. *N. (N.) claviformis* sp. nov. can be distinguished from all the remaining species by the characters of pygophore, especially by the peculiar shape of proctiger and by the acute and convergent laminar flaps of ventral rim of pygophore. The phallosome without processes is characteristic of *Laeviscutis*, whereas the *processus vesicae* 1 arising close to the base of vesica is found in the subgenus *Neotibilis*. However, the strongly sclerotized *processus vesicae* 2 is an unique character among species of the genus.

***Neotibilis (Neotibilis) ecuadorensis* sp. nov.**

(Figs. 3 and 4)

Type locality: Ecuador, Napo Province, San Rafael

Type material. Holotype male, labeled: a) Ecuador, Napo, Sn Rafael, V/1986, L. Duque (QCAZ)

Etymology. The species name refers to the type locality.

General shape ovate elongate. Dorsal surface dark castaneous. Jugae only slightly deflected dorsally. First antennal segment ochraceous, with dark punctures; remaining segments lacking in the specimen examined. Rostrum not reaching mesocoxae. Pronotum densely punctured on dark castaneous; anterolateral margins reddish, bordered on light ocher. Scutellum: basal angles with 1+1 reddish ochraceous calli, smaller than those of other species of the subgenus; apex slightly deflected. Punctures on basal third of scutellum coarser than the remaining. Legs ochraceous, with reddish castaneous punctures on femora.

Mestasternal carina flat. Abdominal venter light brown; abdominal tubercle stout, broader than those of *N. (N.) claviformis* sp. nov. and *N. (N.) manauara* sp. nov. Connexivum with a small yellowish rounded spot occupying the median fifth of each segment, along outer lateral margin.

Male. Measurements (n = 1). Total length 14.69; head length 1.40; head width 2.41; eye width 0.66; interocular distance 1.09; anteocular length 0.50; length of antennal segments I – 0.93; II - V, lacking; pronotum length 2.84; pronotum width 7.04; scutellum length 6.01; scutellum width 4.4; abdominal width 7.04.

Pygophore (Figs. 3, 4) subquadrangular, moderately open in dorsal view; dorsal rim sinuous, U-like along proctiger (Fig. 3). Proctiger rounded apically. Parameres with finger-like portion short, almost as long as auriculate portion, which is concave dorsally. Posterolateral angles rounded. Ventral rim sinuous, more elevated on posterolateral angles and at apices of the narrow U-like mesial excavation (Fig. 4). Laminar flaps of ventral rim complex, with two different portions: one, projected dorsad, and another sagittally disposed visible through excavation of ventral rim. Inner processes of ventral rim of pygophore triangular, contiguous.

Female unknown.

Comments. *Neotibilis (N.) ecuadorensis* can be distinguished from the remaining species of the subgenus by the complex laminar flaps of the ventral rim of pygophore. The narrowly U-shaped excavation of ventral rim is also unique among the species of *Neotibilis*.

***Neotibilis (Neotibilis) manauara* sp. nov.**

(Figs. 5 and 6)

Type locality. Brazil, Amazonas, reserve distant 60 km from Manaus

Type material. Holotype male, labeled: a) Bert Klein; 13/XI/85; 1301-R.C.N.2 (INPA).

Etymology. The species name refers to the type locality

General shape ovate. Dorsal surface castaneous. Jugae strongly deflected dorsally. Antennae ochraceous, punctured on reddish castaneous on the first and second segments; remaining segments lighter. Rostrum not reaching mesocoxae. Pronotum densely punctured on dark castaneous, anterolateral margins ochraceous, narrowly bordered on castaneous. Scutellum: basal angles with 1+1 ochraceous calli. Legs ochraceous, with a few reddish castaneous punctures on femora. Ventral surface of thorax regularly punctured on dark castaneous. Metasternal carina slightly sulcate, almost flat. Abdominal venter yellowish castaneous, lacking punctures on the middle. Abdominal tubercle acute. Connexivum with light area occupying from 1/3 to 1/2 of the middle of each segment, along outer lateral margin.

Male. Measurements (n = 1). Total length 12.85; head length 1.71; head width 2.39; eye width 0.68; interocular distance 0.91; anteocular length 0.57; length of antennal segments I – 1.02, II – 1.33, III – 2.31, IV – 3.51, V – 3.43; pronotum length 2.73; pronotum width 7.12; scutellum length 5.50; scutellum width 4.17; abdominal width 7.36.

Pygophore (Figs. 5, 6) subquadrangular, moderately open dorsally; dorsal rim sinuous, openly U-shaped along proctiger (Fig. 5). Proctiger rounded apically. Parameres with finger-like portion elongated, well surpassing the auriculate portion. Posterolateral angles truncate. Ventral rim openly U-shaped (Fig. 6); laminar flaps well developed, almost the size of parameres, inner lateral margin of flaps sinuous. Inner processes of ventral rim of pygophore in 1+1 small tubercles apart from each other.

Female unknown.

Comments. *Neotibilis* (*N.*) *manauara* sp. nov. can be distinguished from the other species of the subgenus mainly by genital characters, presenting the finger-like portion of parameres long and the laminar flaps of ventral rim large, almost the size of parameres.

New Records to Subgenus *Neotibilis*

Additional data to Grazia & Barcellos (1994) suggest that *N. (N.) biguttata*, *N. (N.) parva* and *N. (N.) chiapensis* would be the species most widely distributed in the genus range.

N. (N.) biguttata, female, labeled: BRASIL. **Amazonas:** Parque Nacional Jaú, (01534442 S, 613510 W), VII/29-VIII/08/2001, Arm. Malaise, Campinarana alta, Henrique & Vidal col. (INPA)

N. (N.) chiapensis, female, labeled: BRASIL. **Roraima:** Serra Pacaraina, BR 174, 042704 N, 7610756 W; 800m, IX/01-07/1995, Henrique & Vidal col., arm. suspensa (INPA).

Female, labeled: BRASIL. **Pará:** Tucuruí (rio Tocantins, base 4), X/04-15/1987, N. Degallier col., Arm. interceptação, isca fruta (MPEG).

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