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# Taroba elephantina: a new genus and species of Hapithinae cricket from southern Brazil (Orthoptera, Grylloidea, Podoscirtidae)

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## Abstract

A new genus and species of cricket belonging to the Hapithinae: Neomorphini (Podoscirtidae) is described from the forests of the Iguaçu National Park, State of Parana, Brazil. The new genus is thoroughly compared with *Neomorpha* Desutter, 1987, the only other member of the Neomorphini described so far.

## Key words

Orthoptera, Grylloidea, Podoscirtidae, neotropical region, Brazil, new genus, taxonomy

## Introduction

Desutter (1987) created the subfamily Hapithinae to include Hapithini Gorokhov and a new tribe Neomorphini. In the same article that author erected the genus *Neomorpha*, placing therein *Aphonomorphus cearensis* Rehn, 1917 and *A. novus* Rehn, 1917. All three taxa erected by Desutter lacked a formal definition; in a subsequent publication these definitions were provided (Desutter 1988).

In her neotropical crickets monograph Desutter (1990) mentions that Neomorphini are restricted to South America and are defined by the following characteristics: 1) absence of stridulatory apparatus; 2) five internal (sometimes six) and five external dorsal spurs on hind tibia; 3) endophallic cavity dissymmetrical, irregularly-shaped; 4) ectophallic invagination sclerified, sclerification surpassing brim of endophallic cavity, dissymmetrical; 5) rami circular.

In the present paper we describe a new genus and species of Neomorphini from southern Brazil and provide a comparison of diagnostic features with those of *Neomorpha*. We employ the terminology of Desutter (1990) for the phallic elements, with the corrections she proposed in a more recent publication (Desutter-Grandcolas 2003).

### *Taroba* de Mello & Dias, n. gen.

(Table 1)

*Type species.*—*T. elephantina*, n. sp.

*Recognition.*— General appearance stout and heavy. Fifth joint of maxillary palpi very short and massive; head and pronotum finely velvety. Forewings glabrous, short, reaching hind border of 1st abdominal tergite, coriaceous, venation thick, longitudinal veins thicker than perpendicular ones; stridulatory vein or specialized areas for sound radiation absent; few reticulations present on dorsal field; claval fold not developed; lateral field with *ca* 4 to 6 longitudinal veins. Hind wings not functional for flight, about as long as forewings.

Metanotal structures heavily sclerotized on fore and median portion, nearly black. Abdominal tergites glabrous, shining. Fore tibia without tympana; three apical spurs present on ventral face. Middle tibia similar to preceding one. Hind tibia with flat dorsal face, bearing five alternating dorsal spurs on each side; upper apical spur the longest on internal face and median the longest externally. Main lobe of pseudepiphallus with a pair of median, long, juxtaposed distal projections; anterior extremity of each ramus juxtaposed, touching each other but not fused; ectophallic sclerite asymmetrical in shape and degree of development, being much more reduced on the right side; ectophallic fold decidedly vertical; endophallic sclerite regressed but some weak pigmentation still present along the sides of entrance of dorsal cavity. Female forewings similar to those of males. Ovipositor laterally compressed, the apical valves depressed, crenulated.

*Etymology.*— The name *Taroba* is given in allusion to the myth of the native *Kaingangue* people on the creation of the Iguaçu Falls; *Taroba* was a warrior, protagonist of the myth.

*Taroba*, new genus, can readily be distinguished from *Neomorpha* Desutter, 1987 by the characters listed in Table 1.

### *Taroba elephantina* de Mello & Dias, n. sp

(Figs 1A,C,D; 2A-O; 3A-E; Table 2)

*Description.*— **Male:** general coloration darker on dorsum. Top of head medium brown with a darker stripe running from posterior margin of eye to pronotum (Fig. 2D). Gena, frons, clypeus and base of mandibles yellowish (Figs 2C, E); clypeus very light yellow. Antennal scape yellow; flagellum smoky brown; interantennal space broader than scape. Eyes with a large unpigmented area on inner margin. Three ocelli present; lateral ones much larger than median. Maxillary palpi yellow, the apical truncation nearly white. Pronotum as in Fig. 2 D, E. Forewings as in Figs 2D, E; 1A. Metanotal structures as in Fig. 1 C, D. Abdominal blackish on dorsum with a pair of broad longitudinal yellowish bands on the sides and another pair of blackish bands running along the ventral margins of each tergite. Cerci yellowish. Supra-anal plate as in Fig. 2H. Fore and middle legs yellowish to very light brown near the apex. Hind tibia (Fig. 2G) smoky brown on dorsum, to very dark brown ventrally armed with rather heavy spines before and between the dorsal spurs. Meso- and metasternum yellowish. Abdominal sternites yellowish on center and medium brown along lateral margin (Fig. 2I). Subgenital plate as in Fig. 2J. Phallic complex as described for the genus (Fig. 2K,L; Fig. 3A-D).



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**Table 1.** Comparison of *Taroba*, new genus, with *Neomorpha* Desutter, 1987.

| ***Taroba*, n. gen.** | ***Neomorpha* Desutter, 1987** Based on an undescribed species from São Paulo, Brazil |
|---|---|
| General appearance stout and heavy. | Appearance more fragile and delicate. |
| Dorsum of head, pronotum and limbs finely velvety, the latter also with short bristles. | Limbs bearing longer bristles. |
| Forewings short, reaching hind border of 1st abdominal tergite; coriaceous, venation thick, longitudinal veins thicker than perpendicular ones; few reticulations present on dorsal field; claval fold not developed; lateral field with *ca* 4 to 6 longitudinal veins (Fig. 1 A). | Forewings long, covering whole abdomen; pergaminaceous, venation delicate; longitudinal veins and perpendicular ones with the same thickness, dorsal field entirely reticulated; claval fold large; lateral field with *ca* 8 to 12 longitudinal veins (Fig. 1 B). |
| Metanotal structures heavily sclerotized, nearly black on fore and median portion (Fig. 1 C). | Metanotal structures not heavily sclerotized, yellowish. |
| Hindwings not functional for flight, about as long as forewings (Fig. 1 C). | Hindwings fully functional for flight, extending beyond hind border of forewings. |
| Main lobe of pseudepiphallus with a pair of median, long, juxtaposed distal projections. | Main lobe of pseudepiphallus with a pair of lateral, relatively short distal projections. |
| Anterior extremity of each ramus juxtaposed, touching each other but not fused. | Both rami fused anteriorly, forming a single U-shaped structure. |
| Ectophallic sclerite asymmetrical in shape and degree of development, being much more reduced on the right side. | *Idem*; although that structure in *Neomorpha cearensis* (Rehn, 1917), as seen in figs 99 and 100 of Desutter (1990), is much less asymmetrical. |
| Ectophallic fold decidedly vertical. | Ectophallic fold subhorizontal. |
| Endophallic sclerite regressed but some poor pigmentation still present along sides of entrance of dorsal cavity. | Ectophallic sclerite regressed and entirely lacking pigmentation. |

**Female:** similar to male with the following exceptions: unpigmented area on dorso-internal margin of eye smaller. Supra-anal plate as in Fig. 2M. Subgenital plate as in Fig. 2N. Ovipositor valves as in Fig. 2O. Copulatory papilla membranous.

*Specimens examined*.—Foz do Iguaçu, Paraná, Brazil: Parque Nacional do Iguaçu, holotype male xii.2005; 2 female paratypes xi. 2006; gallery forest along Mathias Almada river, 1 male, 1 female paratype ii. 2004. All specimens collected by P. G. B. Souza Dias & E. Zefa, preserved in 80% alcohol and deposited at the Museu de Zoologia da Universidade de São Paulo (MZSP).

*Etymology*.—The specific epithet is allusive to the shape of the main lobe of the pseudepiphallus which resembles an elephant trunk.

## Remarks

Desutter (1990) recognized five subfamilies within the Podoscirtidae: Podoscirtinae, Hapithinae, Euscyrtinae, Pentacentrinae and Pteroplistinae. Of these, Podoscirtinae, Hapithinae and Pentacentrinae are present in the Americas. Among the Hapithinae, *Taroba*, n. gen., together with *Neomorpha* Desutter, 1987 are the only members of the Neomorphini.

The reasons why we chose to describe a new member of Neomorphini are to add taxonomic understanding of the group and to contribute to the knowledge of the Iguaçu National Park cricket fauna which is being surveyed.

One of us (FAGM) had the opportunity to examine *Neomorpha cearensis* (Rehn, 1917), the type species, and *N. nova (*Rehn, 1917), kept at the Academy of Natural Sciences of Philadelphia. Due to the large number of specimens of an undescribed species of *Neomorpha* in our collection, we chose to employ that species for comparison with *Taroba*. Table I provides a compilation of characteristics that will promptly show the differences between both genera

## Acknowledgements

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**Table 2.** Measurements (mm) of *Taroba elephantina*, new species. BL, body length; HW, head width; IOD, interocular distance; PL, pronotum length; PW, pronotum width; FWL, forewing length; FWW, forewing width; HFL, hindfemora length; HTL, hindtibia length; OL, ovipositor length.

| | BL | HW | IOD | PL | PW | FWL | FWW | HFL | HTL | OL |
|---|---|---|---|---|---|---|---|---|---|---|
| **Males (n=2)** | | | | | | | | | | |
| Range | 17.00-22.88 | 3.08-3.31 | 1.83-1.86 | 2.33-2.73 | 3.61-3.92 | 4.23-4.45 | 2.03-2.11 | 9.94-11.00 | 9.13-10.63 | / |
| Mean | 19.94 | 3.19 | 1.84 | 2.53 | 3.77 | 4.34 | 2.07 | 10.47 | 9.88 | |
| **Females (n=4)** | | | | | | | | | | |
| Range | 17.38-21.13 | 3.27-3.45 | 1.86-2.16 | 2.51-2.95 | 3.83-4.04 | 4.25-4.67 | 2.33-2.56 | 10.50-10.88 | 9.75-12.13 | 9.63-10.50 |
| Mean | 19.2 | 3.33 | 1.97 | 2.68 | 3.93 | 4.47 | 2.42 | 10.69 | 10.44 | 10.11 |



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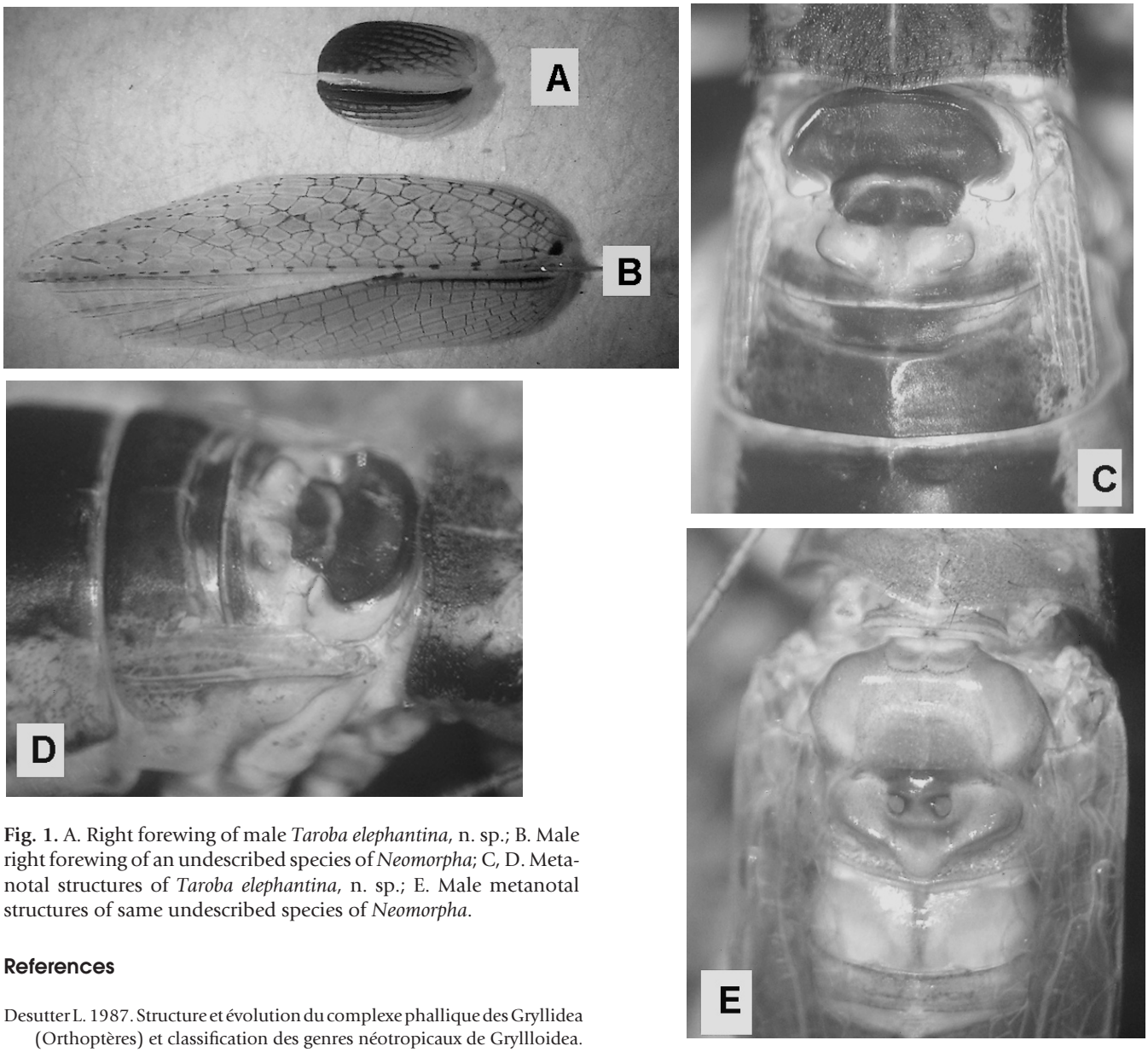



**Fig. 1.** A. Right forewing of male *Taroba elephantina*, n. sp.; B. Male right forewing of an undescribed species of *Neomorpha*; C, D. Metanotal structures of *Taroba elephantina*, n. sp.; E. Male metanotal structures of same undescribed species of *Neomorpha*.

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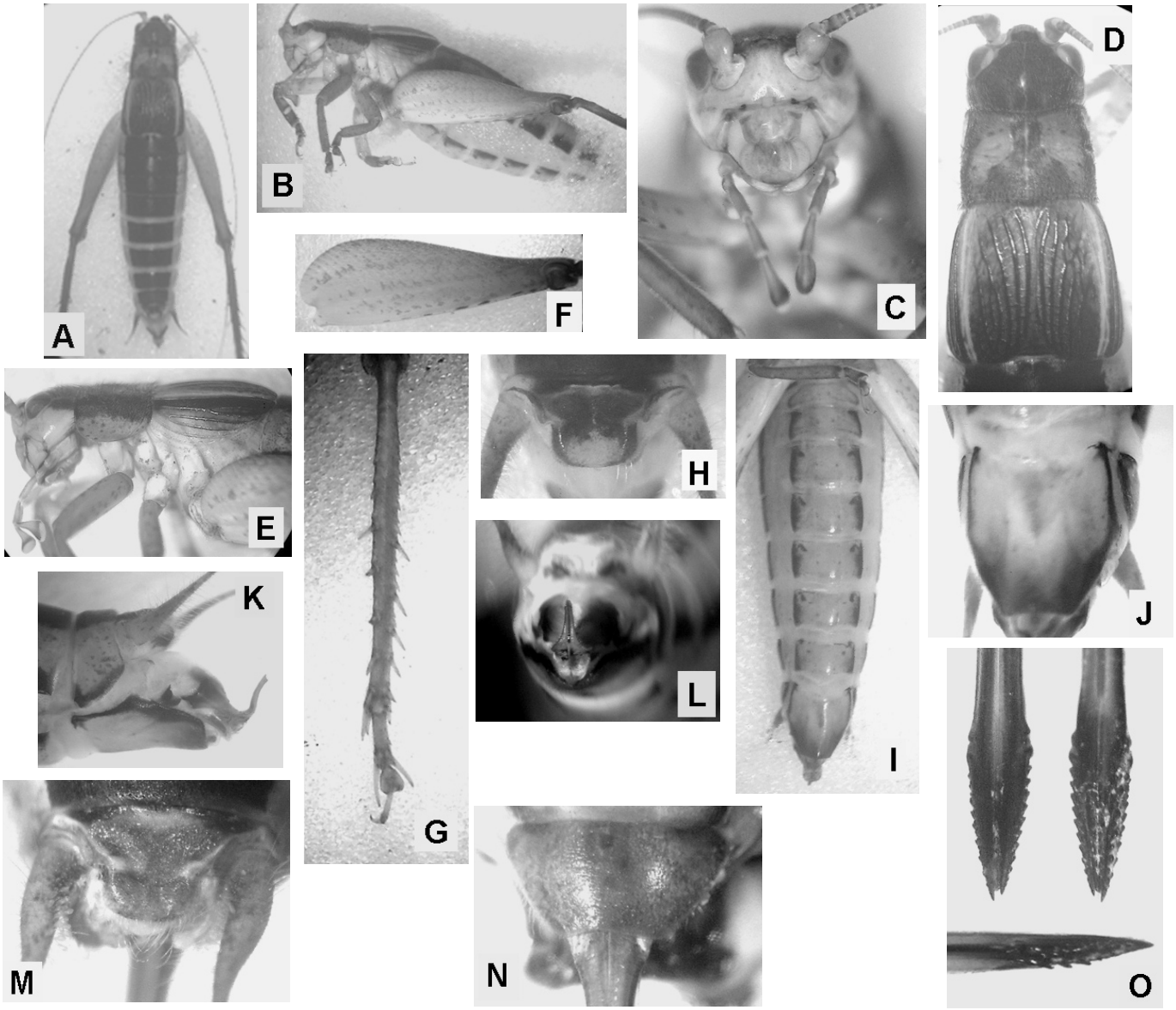



**Fig. 2.** *Taroba elephantina*, n. sp. A. Male habitus, dorsal; B. *Idem*, lateral; C. Front view of male head; D. Male head and thorax, dorsal; E. *Idem*, lateral; F. Male hind femur; G. Male hind tibia; H. Male supra-anal plate; I. Ventral view of male abdomen; J. Male subgenital plate; K. Male terminalia, lateral; L. *Idem*, posterior view; M. Female supra-anal plate; N. Female subgenital plate; O. Apical valves of ovipositor in dorsal, ventral and lateral views, respectively.



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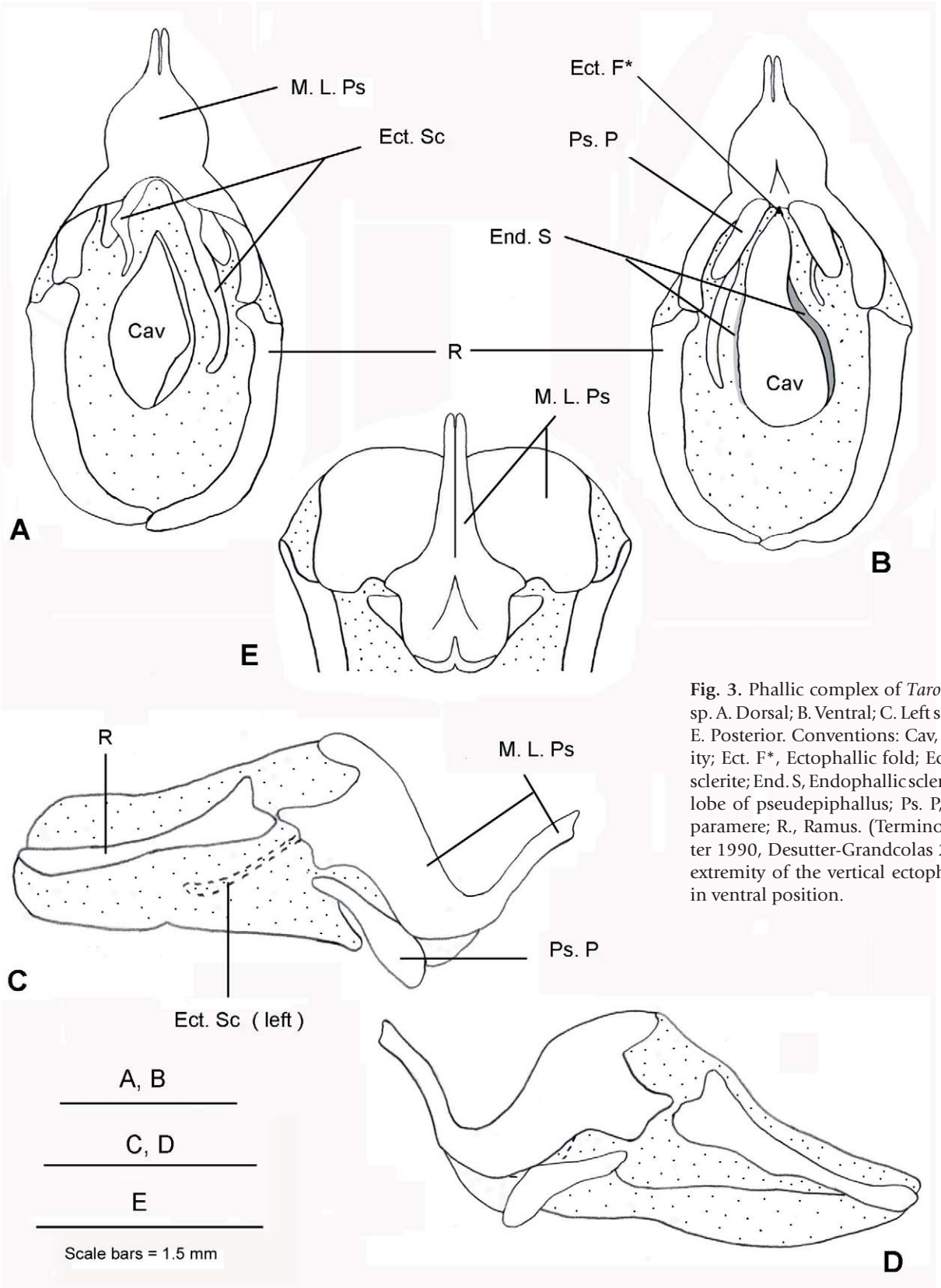



**Fig. 3.** Phallic complex of *Taroba elephantina*, n. sp. A. Dorsal; B. Ventral; C. Left side; D. Right side; E. Posterior. Conventions: Cav, Endophallic cavity; Ect. F*, Ectophallic fold; Ect. Sc, Ectophallic sclerite; End. S, Endophallic sclerite; M. L. Ps, Main lobe of pseudepiphallus; Ps. P, Pseudepiphallic paramere; R., Ramus. (Terminology after Desutter 1990, Desutter-Grandcolas 2003). *Only the extremity of the vertical ectophallic fold visible in ventral position.



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