



Taxonomy of Brazilian *Psychoda* Latreille, 1796 (Diptera, Psychodidae) with the description of thirteen new species

DANILO CORDEIRO¹, FREDDY BRAVO² & CLAUDIO J. B. DE CARVALHO¹

¹Programa de Pós-graduação em Entomologia, Departamento de Zoologia, Universidade Federal do Paraná – UFPR. CP 19020, CEP 81531-980, Curitiba, PR, Brazil. E-mail: d.pacheco.c@gmail.com; cjbcarva@ufpr.br

²Departamento de Ciências Biológicas, Universidade Estadual de Feira de Santana, Av. Universitária s/n, 44031-460, Feira de Santana, BA, Brazil. E-mail: fbravo@uefs.br

Table of content

Abstract	2
Introduction	2
Material and methods	2
Taxonomy	3
<i>Psychoda</i> Latreille, 1796	3
Key for females of <i>Psychoda</i> from Brazil	4
Key for males of <i>Psychoda</i> from Brazil	5
<i>Psychoda alternata</i> Say	6
<i>Psychoda alternicula</i> Quate	6
<i>Psychoda amazonensis</i> Cordeiro & Bravo	7
<i>Psychoda buxoides</i> Quate	8
<i>Psychoda dantilandensis</i> Bravo, Cordeiro & Chagas	9
<i>Psychoda divaricata</i> Duckhouse	11
<i>Psychoda laticaula</i> Quate	11
<i>Psychoda litotes</i> Quate	13
<i>Psychoda savaiiensis</i> Edwards	14
<i>Psychoda serraarobonensis</i> Bravo, Cordeiro & Chagas	15
<i>Psychoda talamanca</i> Quate	16
<i>Psychoda zetoscota</i> Quate	18
<i>Psychoda atlantica</i> , sp. nov.	18
<i>Psychoda bahiensis</i> , sp. nov.	20
<i>Psychoda complexa</i> , sp. nov.	21
<i>Psychoda concavula</i> , sp. nov.	21
<i>Psychoda ituberanensis</i> , sp. nov.	24
<i>Psychoda matogrossensis</i> , sp. nov.	25
<i>Psychoda paranaensis</i> , sp. nov.	26
<i>Psychoda pedunculata</i> , sp. nov.	28
<i>Psychoda pentagona</i> , sp. nov.	30
<i>Psychoda serrana</i> , sp. nov.	30
<i>Psychoda silvensis</i> , sp. nov.	31
<i>Psychoda speculata</i> , sp. nov.	33
<i>Psychoda trilobatula</i> , sp. nov.	34
Acknowledgements	35
References cited	36

Abstract

Thirteen new species of Brazilian *Psychoda* Latreille are described. *Psychoda buxoides* Quate, *Psychoda laticaula* Quate, *Psychoda litotes* Quate and *Psychoda talamanca* Quate are redescribed and illustrated. Also, the female of *Psychoda dantilandensis* Bravo, Cordeiro & Chagas is described for the first time, and additional characters are presented for *Psychoda alternata* Say, *Psychoda alternicula* Quate, *Psychoda amazonensis* Cordeiro & Bravo, *Psychoda dantilandensis*, *Psychoda divaricata* Duckhouse, *Psychoda serraorobonensis* Bravo, Cordeiro & Chagas, *Psychoda savaiiensis* Edwards, and *Psychoda zetoscota* Quate. Two identification keys for the species that occur in Brazil are also presented, one for males, one for females.

Key words: Brazil, *Psychoda*, new records, new species.

Introduction

Psychoda Latreille is the first described genus of Psychodidae and one of the largest in number of species. The taxonomic definition of *Psychoda*, which has been more extensively debated after the work of Quate (1959a), is controversial. Quate emphasized the shape of the labellum as a diagnostic character. This structure is nearly always flattened in *Psychoda sensu lato*, contrasting with the bulbous labellum of most Psychodidae. However, two other genera (*Epacretron* Quate and *Neomaruina* Vaillant) and also two species of *Threticus*, were also described as having a flattened labellum with apical “teeth”, and there are species described in *Psychoda* that present a bulbous labellum (e.g. *Psychoda cristata* Duckhouse).

Since Quate’s initial definition of the genus, as discussed in Bravo *et al.* (2006), *Psychoda sensu lato* (Quate 1959a, 1996; Duckhouse 1985; Ibáñez-Bernal 1993; Bravo *et al.* 2006) has been split into two (Vaillant 1972, Wagner 1991), six (Duckhouse & Lewis, 2000) or 13 genera (Ježek 1984, 2007; Ježek & van Harten 1996, 2005).

In this work we follow Bravo *et al.* (2006) in our definition of *Psychoda*, which closely approximates that of Quate (1959a, 1996). Although the morphological diversity seen in *Psychoda* species strongly suggest that it must represent more than one genus, we believe that the problems highlighted by Bravo *et al.* (2006), still compromise the use of the generic classification proposed by Ježek. In this view, *Psychoda* includes species with the following characteristics: labellum generally flattened with apical “teeth”, premental apodeme (cibarial fork in Vaillant 1990) absent, antenna with 12–14 flagellomeres, apical flagellomeres always reduced, ascoid (sensory filaments) with one posterior and two or three anterior branches (Y and Ψ in this paper), male gonocoxites widely separated by the hypandrium, aedeagus asymmetrical (rarely symmetrical) with simple paramere, male surstylus (cercus in Bravo *et al.* 2006 and Cordeiro & Bravo 2008) with a single apical tenaculum, female subgenital plate bilobed (rarely trilobed) and genital digit generally present.

Only six species of *Psychoda* are currently registered as occurring in Brazil. Duckhouse (1968) described *P. divaricata* Duckhouse from the state of Santa Catarina. Bravo *et al.* (2006) described two species from the state of Bahia (*P. dantilandensis* Bravo, Cordeiro & Chagas and *P. serraorobonensis* Bravo, Cordeiro & Chagas) and recorded *P. divaricata* (on the states of Bahia, Espírito Santo and Pará), and other two species from Bahia (*P. zetoscota* Quate, originally described from Central America, and *P. alternata* Say, a cosmopolitan species). Finally, Cordeiro & Bravo (2008) described the first viviparous species of the genus, *P. amazonensis* Cordeiro & Bravo, from the state of Amazonas. Even though Vaillant & Botoşăneanu (1966) noted the presence of *P. parthenogenetica* Tonnoir in Brazil, they did not provide information about the locality where specimens had been collected; Duckhouse (1985) believes that, if this species occurs in the tropics at all, it is restricted to high altitudes.

In this work we describe 13 new species of *Psychoda* from Brazil, and present records on 12 previously described species, six of which are recorded for the first time in the country. Furthermore, illustrations and comments on the morphology of poorly know species are presented. Two identification keys for the species that occur in Brazil are also presented, one for males, one for females.

Material and methods

The specimens examined are deposited in the *Coleção de Invertebrados do Instituto Nacional de Pesquisa da Amazônia*, Amazonas, Brazil (INPA), *Coleção Entomológica Padre Jesus Santiago Moure*, Paraná, Brazil (DZUP)