

# Notes on the Neotropical Midilinae, with description of one new genus and two new species (Lepidoptera: Crambidae)

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## Abstract

*Pycnarmodes* Becker gen. n. with two species from Brazil: *Pycnarmodes auricolor* Becker sp. n., and *P. parallelographa* Becker, sp. n., are described. *Malleria argenteofulva* Munroe, 1959, is transferred from the Musotiminae to the Midilinae. Diagnosis, key to species and illustrations of the two *Pycnarmodes* species and of *M. argenteofulva* are also presented.

KEY WORDS: Lepidoptera, Crambidae, Midilinae, *Malleria*, new genus, new species, taxonomy, distribution, Brazil.

## Notas sobre los Midilinae neotropicales, con la descripción de un género y dos especies nuevos (Lepidoptera: Crambidae)

## Resumen

Se describe *Pycnarmodes* Becker gen. n. con dos especies de Brasil: *Pycnarmodes auricolor* Becker sp. n., y *P. parallelographa* Becker, sp. n. *Malleria argenteofulva* Munroe, 1959, es transferida de los Musotiminae para los Midilinae. También se presentan las diagnósisis, descripciones e ilustraciones de las dos especies de *Pycnarmodes* y de *M. argenteofulva*.

PALABRAS CLAVE: Lepidoptera, Crambidae, Midilinae, *Malleria*, género nuevo, especies nuevas, taxonomía, distribución, Brasil.

## Introduction

The Midilinae is a group of neotropical moths ranging from Mexico to Northern Argentina (MUNROE, 1970), represented by 48 species in seven genera (MUNROE, 1995). The Erupini, transferred from the Crambinae to Midilinae by HAYDEN (2012), was transferred back to the Crambinae as the sister group of all the other tribes belonging to this subfamily (LÉGER *et al.*, 2019). They are highly variable either in size, color, and shape, including the largest Pyralidae species (*Midila* Walker, 1858, *Eupastranaia* Becker, 1973), and others much smaller (*Hositea* Dyar, 1910, *Dismidila* Dyar, 1914). They do not look like a typical Pyralidae at all, the reason why they were originally established in such families as the Noctuidae, Geometridae and Limacodidae. The taxa treated here do not resemble the species currently belonging to the subfamily either, but look like other Pyralidae, such as some Spilomelinae. They also are not common. After over 50 years of intensive collecting by the author in Brazil and other Latin American countries only the 25 specimens studied here, representing three species, were collected.

## Material and methods

This work is based on 25 specimens (9 g. s.) in the author's collection (VOB) and nine more in the MHNG. A synoptic collection representing the species described here were taken to the CMNH, the NHMUK and the USNM to be compared with their collections. No specimen belonging to these species were found in these museums. The holotypes of the new species are provisionally deposited in VOB, and will be transferred, together with the collection, to a Brazilian institution in the future. Genitalia were prepared following the methods described by ROBINSON (1976). Terms for morphological characters follow HODGES (1971).

## Abbreviations

CMNH	=	Carnegie Museum of Natural History, Pittsburgh, USA
CNC	=	Canadian National Collection, Ottawa, Canada
FW	=	forewing
g. s.	=	genitalia slide
HW	=	hind wing
MHNG	=	Museum d'Histoire Naturelle, Geneva, Switzerland
NHMUK	=	Natural History Museum, London, United Kingdom
TS	=	Type species
USNM	=	United States National Museum, Washington DC, USA
VOB	=	Vitor O. Becker Collection, Serra Bonita Reserve, Camacan, Bahia, Brazil

## Results and discussion

Examination of specimens in the author's collection (VOB) revealed that two species of Midilinae are undescribed and could not be associated to any of the genera recognized for this subfamily. A new genus is here proposed to accommodate them. Also found were six specimens belonging to *Malleria argenteofulva* Munroe, 1959. This is a monotypic genus, formerly known from the single female holotype, originally described in the Pyraustinae, and later moved to Musotiminae. The presence of chaetosemata and the characters of male genitalia, especially the articulated gnathos, described and illustrated here for the first time, as well as the reduced tympanum, indicates that it also belongs to the Midilinae, as defined by MUNROE & SOLIS (1999: 246). Descriptions, keys, and illustrations of the taxa treated here are presented to allow their identifications.

### *Pycnarmodes* Becker, gen. n.

TS: *Pycnarmodes parallelographa* Becker, sp. n.

Diagnosis: Wings marked with, curved, parallel lines.

Description: Labial palpi curved upwards to mid frons; third segment small, 1/3 of second (thinner, much longer in females); FW marked with curved, parallel black lines, costa nearly straight, apex broadly angled, termen round; dorsum straight; M2-M3 connected at lower end of cell; Cu1 before angle. HW with thin, parallel lines along margin; pair of dots in the middle or above tornus. Male genitalia with long uncus and articulated gnathos, almost as long as uncus, valva broad and simple: costa and sacculus slightly or not defined; phallus long, thin, almost as long as valva. Female genitalia with very long ductus bursae; corpus bursae globular, signum absent.

Etymology: A masculine epithet derived from *Pycnarmon* Lederer 1863, a genus belonging to the Spilomelinae, due to the resemblance of their pattern, specially to *P. leucinodialis* (Schaus, 1912).

Remarks: The presence of chaetosemata, the short, laminate antenna and the simple male genitalia with articulated gnathos, as well as the reduced tympanum orientated posteriorly, as described by HAYDEN (2012), are characters typical to the Midilinae. In the key to the Midilinae genera

(MUNROE, 1970: 7) this genus comes out together with *Hositea*, sharing the white ground color and the shape of palpi and antennae. It differs by the lined wing pattern and the shape of the wings: FW termen angled out in the middle and HW with apex pointed in *Hositea*, whereas both wings with termen evenly round in *Pycnarmodes*. They also differ in the shape of gnathos: tapering distad in *Hositea* but spatulate in *Pycnarmodes*. Two species from Brazil are known for the genus, as described below.

Key to *Pycnarmodes* species

1. Wings ground color whitish cream ..... *parallelographa*  
 FW ground color wholly golden yellow ..... *auricolor*

***Pycnarmodes parallelographa* Becker, sp. n.** (figs 1-3, 5, 7-8, 13)

Material examined (26 specimens, 4 g. s.): Holotype ♂, BRAZIL: Bahia, Camacan, 15°23'S - 39°33'W, 800 m, 1-15-XII-2020 (Becker 162431) (VOB); paratypes: 4 ♂♂, same data as the holotype, g. s. 5680 (VOB); 9 ♂♂, 1 ♀, Idem, but: 15-XI-1995, II-2012, IX-2010, XII-2013, 1-31-X-2020, g. s. 5242, 5243 (Becker 106232, 146747, 148877, 151199, 161633) (VOB, USNM); 6 ♂♂, Idem, 24-XI-16-XII-2013 (Landry & Becker) (MHNG 87221-87226); 2 ♂♂, Espírito Santo, Linhares, 2-XI-1988 (Santos), (VOB); 1 ♂, Paraná, Guaraqueçaba, 9-XII-1970 (Becker 7811) (VOB); 1 ♀, Santa Catarina, São Bento do Sul, Serra do Natal, 800 m, 1-29-I-1999, g. s. 5681 (Thöny) (VOB); 1 ♂, same data, but 4-9-I-2005 (Moser) (VOB).

Diagnosis: The cream wings marked with parallel lines are unique in the subfamily.

Description: Male (figs 2, 5) FW length 10-13 mm (wingspan 23-30 mm). Cream, marked with black lines and dots. Labial palpi black dorsally; vertex with posterior margin with black scales. Thorax along middle, patagia and base of tegula black; legs whitish; FW: three dots at base; antemedial band double, following parallel along dorsum and tornus, then along termen up to costa, and backwards to distal third of costa; large reniform ring at end of cell; dot on fold, below cell; double, interrupted, parallel lines close to termen. HW with three thin, parallel lines along termen; pair of dots on the middle. Abdomen cream dorsally, with pair of dots on 3<sup>rd</sup> segment, transverse bands from 4<sup>th</sup> to tip, first broad, the others narrowing gradually towards tip; whitish ventrally, with pair of dots on each segment. Genitalia (fig.7): uncus a long, sharp pointed rod; gnathos spatulate, nearly as long as uncus; valva broad, slightly constricted at middle, costa slightly defined; distal margin straight, oblique from costa to middle of ventral margin; vinculum round; juxta a large, nearly round plate; phallus (fig. 8) long, slightly bent dorsal. Female (fig. 3) FW length 13-15 mm (wingspan 30-34 mm); similar to male but larger. Genitalia (fig. 13): ostium wide, antrum conical, ductus bursae very long, nearly 2/3 of abdomen; corpus bursae globular.

Distribution (fig. 1): Brazil, along the Atlantic Forest, from Bahia south to Santa Catarina.

Etymology: A noun derived from the Greek *παράλληλος* =parallel, and *γράφω* =write, line; in reference to the parallel lines that mark their wings.

Remarks: Easily distinguished from *auricolor* by the ground colour of FW, wholly whitish cream.

***Pycnarmodes auricolor* Becker, sp. n.** (figs 1, 4, 9, 10)

Material examined: Holotype ♂, BRAZIL: Pará, Capitão Poço, 25-31-I-1984, g. s. 5682 (Becker 47830) (VOB).

Diagnosis: Medium size. Golden yellow. FW with three straights, near parallel black lines at basal third; a reniform ring on cell, followed by sinuous postmedial band.

Description: Male (fig. 4) FW length 12 mm (wingspan 27 mm). Labial palpi cream, blackish dorsally; frons golden yellow; antenna pale yellow. Thorax golden yellow, dorsal margin of patagia and dorsal margin of tegula blackish; legs ringed black on articulations. FW golden yellow, marked with

black lines: three straights, transverse, nearly parallel on basal third; reniform ring at end of cell; postmedial band from mid costa, following parallel around reniform ring to Cu<sub>2</sub>, then down to dorsum, before tornus; two irregular black dots distad of postmedial band between M<sub>3</sub>-Cu<sub>2</sub>, and between anal fold-A<sub>2</sub>; terminal line and cilia forming two parallel lines. HW with pair of dots above tornus; double, thin, parallel lines along termen. Abdomen golden yellow banded dark grey dorsally, tip blackish; whitish ventrally, with ill-defined bands towards tip. Genitalia (fig. 9): uncus a long, sharp pointed rod; gnathos a rod slightly thickened medially, almost as long as uncus; valva broad, widening slightly distad, costa slightly defined, sacculus not defined; distal margin broadly round; vinculum subsquare; juxta a large, flat plate; phallus (fig. 10) thin, long, small digital process at apex. Female unknown.

Distribution (fig. 1): Brazil, amazons; known from the type locality only.

Etymology.- From the Latin *aurum* =gold + *colour* =colour, tint; in reference to the yellow ground colour of the wings.

Remarks: Easily distinguished from *parallelographa* by the golden yellow ground colour.

*Malleria* Munroe, 1959

*Malleria* Munroe, 1959. *Can. Ent.*, **91**: 370

TS: *Malleria argenteofulva* Munroe, 1959. *Can. Ent.*, **91**: 371, by original designation.

Diagnosis: The silvery white wings mottled with multiple brownish rings is unique in the subfamily.

Remarks: This genus also keys out together with *Hositea* and *Parallelographa*, differing from them by the blotched wing pattern, the FW with acute apex and HW with slightly sinuous termen. It is a monotypic genus, described from a single female from Santa Catarina, Brazil, with no mention to its subfamily association (MUNROE, 1959). However, as all taxa described in the same article belong to what was then considered Pyraustinae, it is inferred that *Malleria* was regarded as belonging to this subfamily. It was later transferred to Musotiminae (MUNROE, 1995: 46). The characters of the male genitalia, and the orientation of tympanum, indicates that it is a true Midilinae, as shown by the illustrations presented here.

*Malleria argenteofulva* Munroe, 1959 (figs 1, 5, 11, 12)

*Malleria argenteofulva* Munroe, 1959. *Can. Ent.*, **91**: 371

Holotype ♀, BRAZIL: Santa Catarina, Corupá, IV-1955 (Maller) (CNC, type 6734) [examined].

Diagnosis: Male (fig. 5) FW length 10-14 mm (wingspan 24-32 mm), female FW length 16 mm (wingspan 36 mm). Wings silvery white, mottled with multiple brown rings outlined with yellowish orange; straight, oblique band, from basal third of costa to tornus. Genitalia (fig. 11): uncus long, thin, curved ventrad, apex sharp; gnathos almost as long as uncus, slightly thicker; valva spatulate, slightly constricted at base; vinculum round; phallus (fig. 12) long, bent dorsal at basal third.

Material examined (6 specimens, 1 g. s.): Type; BRAZIL: Bahia, 2 ♂♂, 1 ♀, Camacan, 15°23'S - 39°33'W, 800 m, 21-30-IX-1991, IV-2010, IX-2011, g. s. 5241 (Becker 84041, 146094, 147159) (VOB); 2 ♂♂, 1 ♀, Idem, 9-IV-2011 (Landry & Becker) (MHNG 87218, 87219), 1 ♂, 1 ♀, Espírito Santo, Linhares, 28-IV, 3-X-1989 (Santos) (VOB).

Distribution (fig. 1): Brazil, along the Atlantic Forest, from Bahia, south to Santa Catarina.

Remarks. It is rare at the lights; after over 50 years of intensive collecting along the Atlantic Forest of eastern Brazil only the three specimens studied here were collected. A showy species like this would not be unnoticed to any moth collector. It resembles a slightly larger *Bocchoris placitalis* Schaus, 1912 (Spilomelinae).

## Acknowledgements

Paulo Nunes, Serra Bonita Reserve, Camacan, Bahia, Brazil, prepared the illustrations; Bernard Landry (MHNG), reviewed the manuscript, made several corrections and suggested some changes that

improved the article, and sent the live image of *P. parallelographa*; one anonymous referee presented several suggestions that improved the article.

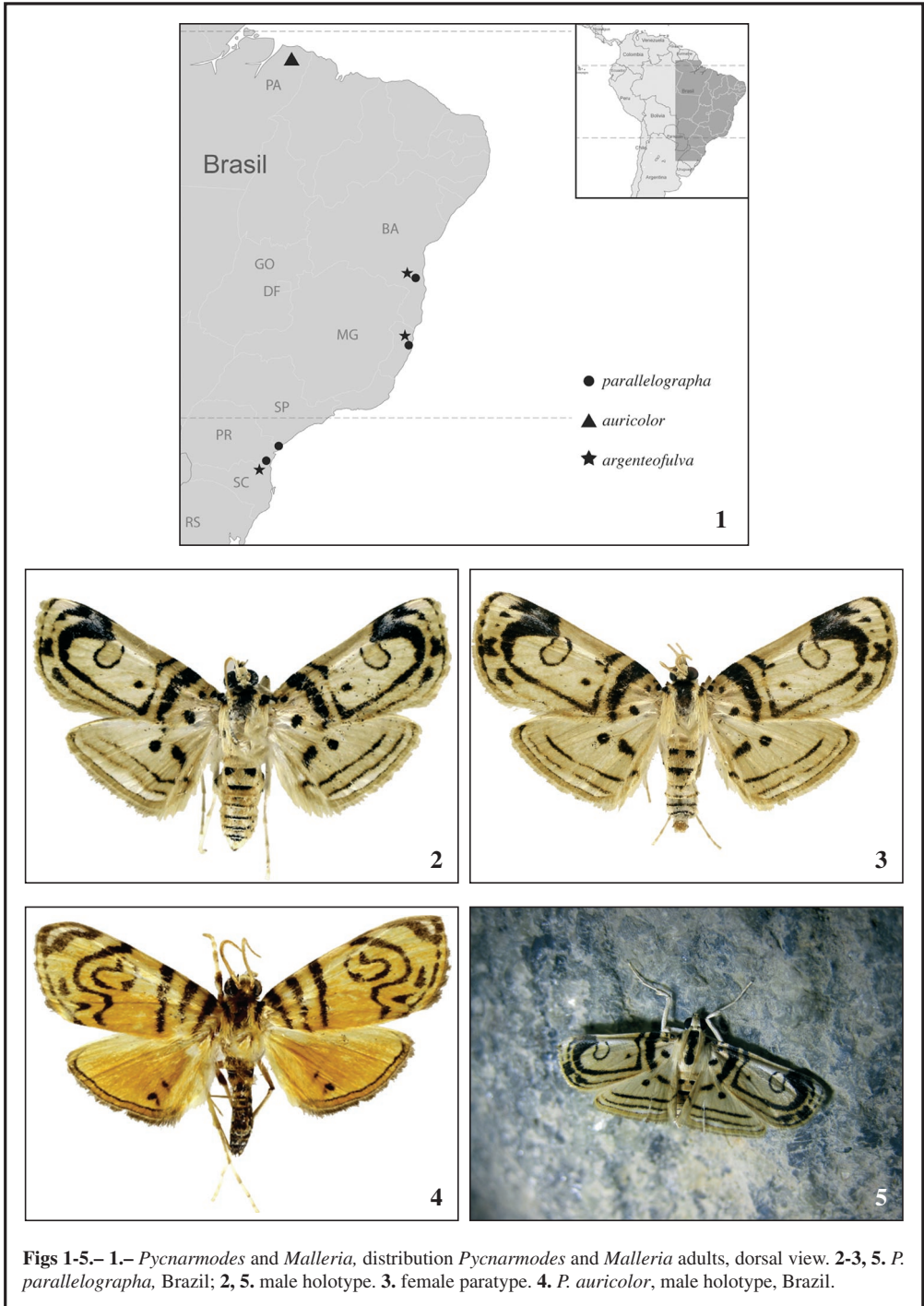
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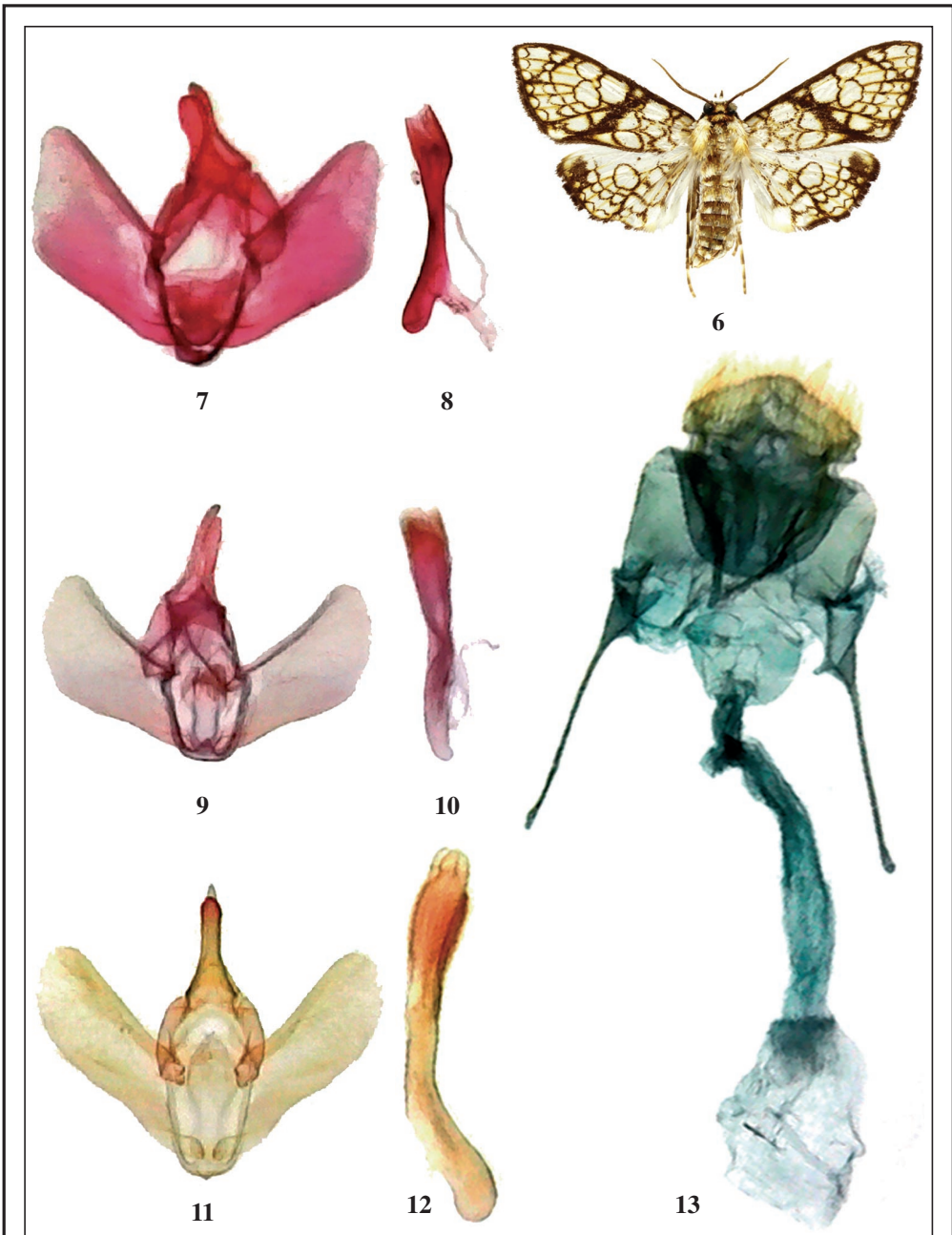
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(Recibido para publicación / *Received for publication* 3-III-2021)  
(Revisado y aceptado / *Revised and accepted* 20-IV-2021)  
(Publicado / *Published* 30-VI-2022)

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**Figs 6-13.**— 6. *M. argenteofulva*, male, Brazil. *Pycnarmodes* and *Malleria* genitalia, ventral view, phallus, lateral view, Brazil. 7-8. *P. parallelographa*, male paratype. 9-10. *P. auricolor*, male holotype. 11-12. *M. argenteofulva*. 13. *P. parallelographa*, female paratype.