



First record of *Xylophanes ploetzi* (Möschler, 1876) (Lepidoptera, Sphingidae) from Brazil

Gilcélia M. Lourido, Catarina da S. Motta[†]

Instituto Nacional de Pesquisas da Amazônia, Coordenação de Biodiversidade, Avenida André Araújo 2936, Manaus, AM, Brazil.

Corresponding author: Gilcélia M. Lourido, gilourido@yahoo.com.br

[†] In memoriam.

Abstract

Two specimens of *Xylophanes ploetzi* (Möschler, 1876) (Lepidoptera: Sphingidae) were collected in Manaus representing the first record from Brazil.

Key words

Hawkmoths; taxonomy of Lepidoptera; central Amazon; Brazilian Amazon.

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Introduction

Xylophanes ploetzi (Lepidoptera: Sphingidae), initially *Chaerocampa* Duponchel, 1835, was described by Möschler (1876) based on a male specimen from Surinam. Later, Rothschild (1894a) described *Callioma drucei*, based on samples collected from River Demerara in erstwhile British Guiana. In a review of Sphingidae, Rothschild and Jordan (1903) found that the species proposed by Rothschild (1894a) was the same as that of Möschler (1876), and thus, considered *Callioma drucei* as the junior synonym of *Chaerocampa ploetzi*, and at the same time, transferred the species to the genus *Xylophanes* Hübner, [1819].

In subsequent publications, the occurrences of *X. ploetzi* in Venezuela (Rothschild 1894b) and French Guiana (Haxaire 1987, Haxaire and Rasplus 1987) were added. However, the specimens reported in the aforementioned literature come from older collections, and the species is considered to be rare (Haxaire and Rasplus 1987) and has not been found in new surveys until the work of Haxaire

(2005). Until now, *X. ploetzi* appeared to be restricted to Suriname, Venezuela, Guyana, and French Guiana (Kitching 2017).

This work aims to record the first-known occurrence of *X. ploetzi* in Brazil, and more precisely, in the state of Amazonas at Manaus. Thus, the number of recorded species in the Brazilian Amazon is increased.

Methods

The specimens were collected from Ducke Forest Reserve, an upland non-flooded area of forest (10,072 ha), which is located in Manaus at km 26 km of Amazonas state highway AM-010 (03°08' S, 060°02' W). This reserve is composed of 4 different types of environments according to the general classification of upland non-flooded forests, which is based on the type of relief and the soil composition that may be recognized as plateau, slope, *campinarana* (white sand scrub forest), and valley bottoms (Hopkins et al. 2005).



Figure 1. Distribution map of *Xylophanes ploetzi* (Möschler, 1876).

According to the data on the labels of the specimens of *X. ploetzi*, these were captured with Malaise trap by F.F. Xavier Filho in May 2011. The material was deposited in the collection of Invertebrates of the Instituto Nacional de Pesquisas da Amazônia (INPA), under the registration numbers INPA-LEP000088 and INPA-LEP000089.

The specimens were photographed in dorsal and ventral views. The right anterior wings of the specimens were measured with a digital caliper. The male specimen had its

abdomen removed and cleared in 10% potassium hydroxide (KOH) solution for further dissection and removal of the genitalia, which was analyzed and photographed with digital camera Leica® M205C stereomicroscope coupled with a Leica® DFC295 and Leica Application Suite v. 4.1 Interactive Measurements Montage. The geographical distribution was plotted using the online mapping software Simplemappr (Shorthouse 2010).

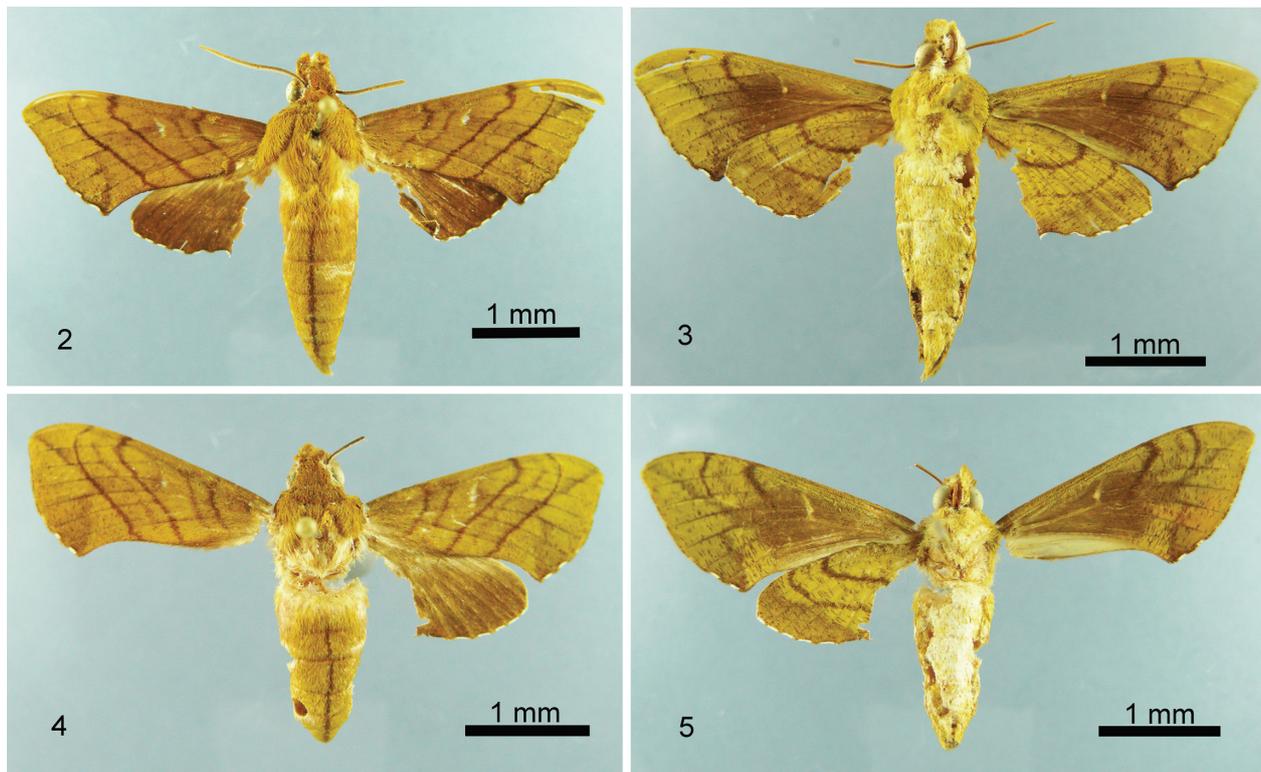
Results

New records. Brazil, Amazonas, Manaus, Ducke Forest Reserve (03°08' S, 060°02' W), F.F. Xavier Filho, iv.2011, vouchers numbers LEP000088 and INPA-LEP000089, 1 ♂ and 1 ♀. Brazil, Amazonas, Manaus / AM-010, km 26 / Reserva Ducke / iv.2011 / F.F. Xavier Filho / Malaise Trap, 1 ♂ and 1 ♀ (INPA).

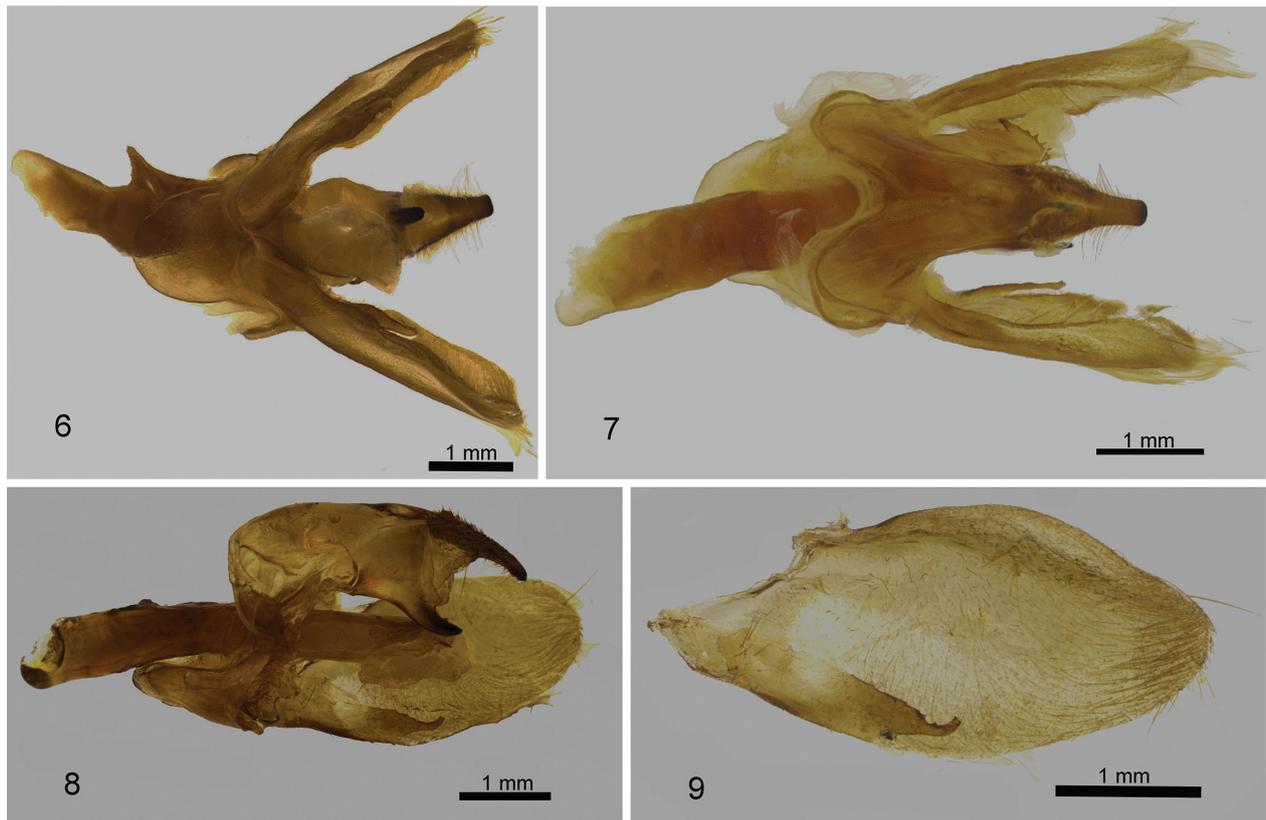
Identification. Of the 2 specimens, 1 is male (right forewing, 22.9 mm) and 1 is female (25.5 mm) (Figs 2–5). Even though the male specimen had a damaged right antenna, and the female had no left posterior wing and antennae, the identification was still possible. It was not possible to dissect the female because the abdomen was damaged.

The specimens were identified by Catarina da Silva Motta (a specialist in Amazonian Sphingidae), based on the works of Rothschild and Jordan (1903) and D'Abreu (1986).

Xylophanes ploetzi resembles *X. depuiseti* (Boisduval, [1875]) and *X. adalia* (Druce, 1881) by their gen-



Figures 2–5. *Xylophanes ploetzi* (Möschler, 1876). **2.** Dorsal view of the male. **3.** Ventral view of male. **4.** Dorsal view of female. **5.** Ventral view of female.



Figures 6–9. Male genitalia of *Xylophanes ploetzi* (Möschler, 1876). **6.** Ventral view. **7.** Dorsal view. **8.** Lateral view. **9.** Valvae in internal view.

eral pattern of coloration. *Xylophanes ploetzi* differs from the other 2 species in the following characteristics: ventral and dorsal surfaces of the body predominantly yellow ochre, forewings without apical projection, white stigma on the transversal *dcm* and *dci* veins, and small groups of white fringes along the distal margin between *M*₃ and *1A+2A*, and abdomen with a thin brown median dorsal line. The male genitalia of *X. ploetzi* (Figs 6–9) has a subtriangular uncus, with a truncated apex and descending posterior extremities, and a setose dorsal surface; the tegumen concave at the proximal margin; the gnathos with sclerotized distal extremity, narrower and more pointed than those of *X. depuseti* and *X. adalia*; the anterior projection of saccus rounded in ventral view; the valvae elongated, subelliptical and densely setose; the harpe robust at the base and narrow at the apex, differing from *X. depuseti* and *X. adalia*, in which it gets gradually narrowed; the aedeagus slightly curved, with denticles at the distal portion; and the vesica membranous. In addition, *X. depuseti* is recorded only from southern and southeastern Brazil, and *X. adalia* in Central America and in South America only from Ecuador.

Discussion

These are the first records of *X. ploetzi* in Brazil, and they were collected in an ombrophilous forest in the Central Amazon (Fig. 1). The collection area is a reserve that serves for all research segments of INPA and other national and international institutions (Hopkins et al.

2005), and where numerous research projects are developed. This makes it surprising that *X. ploetzi* has never been reported in Brazil.

Camargo et al. (2016) did not mention the occurrence of *X. ploetzi* in their work on the hawkmoths of the Brazilian Amazon, and neither did Kitching (2017) in his taxonomic inventory of the Sphingidae. The new data are important because this species has never been reported in the numerous surveys, usually with light traps in the state of Amazonas (e.g., Motta et al. 1998, Motta and Andreazze 2001, Motta and Xavier Filho 2005, Motta 2009).

Interestingly, *X. ploetzi* was probably collected by Malaise trap by accident. This may indicate that, although the light trap is the most efficient method for collecting or monitoring moths (Jansen 1983), some species may not be attracted to light, as they may be less sensitive to this type of stimulus (Narvaez and Soriano 1996). This may not be the case with *X. ploetzi*, as Rothschild (1894b) claimed to have examined specimens captured by the light bulbs in the copper mines of Aroa, Venezuela. In most papers mentioning this species, there is no information about the collection methods used or, as reported by Haxaire and Raspus (1987), such data are not included on specimen tags. Thus, information on *X. ploetzi* is very scarce, which makes it impossible to infer anything about its behaviour and about the methods of its collection. In addition, the immature stages of *X. ploetzi* and its host plants are unknown.

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Authors' Contributions

CSM identified the specimens and GML collected the data and wrote the text.

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