

---

## **A new species of *Cenosoma* Wulp, 1890 (Diptera: Tachinidae: Dexiinae) from the Neotropical Region, with an updated host record for its tribe**

Authors: de Santis, Marcelo Domingos, Nihei, Silvio Shigueo, and Couri, Márcia Souto

Source: Integrative Systematics: Stuttgart Contributions to Natural History, 6(2) : 113-120

Published By: Stuttgart State Museum of Natural History

URL: <https://doi.org/10.18476/2023.942996>

## RESEARCH ARTICLE

# A new species of *Cenosoma* Wulp, 1890 (Diptera: Tachinidae: Dexiinae) from the Neotropical Region, with an updated host record for its tribe

MARCELO DOMINGOS DE SANTIS<sup>1</sup>, SILVIO SHIGUEO NIHEI<sup>2</sup> & MÁRCIA SOUTO COURI<sup>1</sup>

## Abstract

*Cenosoma* Wulp, 1890 is a New World genus placed in the tribe Oestrophasiini (Tachinidae: Dexiinae). A new species, *C. catiae* sp. n., is described from Brazil and Guyana. Descriptions and illustrations of the male and female, and a key for the identification of the four known species of *Cenosoma* are given. Finally, an updated host record list for Oestrophasiini is given.

Key words: description, microtype eggs, morphology, Oestrophasiini, taxonomy.

## Zusammenfassung

*Cenosoma* Wulp, 1890 ist eine Gattung aus der Neuen Welt, die zur Tribus Oestrophasiini (Tachinidae: Dexiinae) gehört. Eine neue Art dieser Gattung, *C. catiae* sp. n., wird aus Brasilien und Guyana beschrieben. Die Beschreibungen und Abbildungen des Männchens und Weibchens sowie ein Bestimmungsschlüssel für die vier bekannten Arten von *Cenosoma* werden aktualisiert, um diese neue Art einzubeziehen. Schließlich wird eine aktualisierte Wirtliste für die Oestrophasiini vorgelegt.

## Introduction

The New World genus *Cenosoma* Wulp, 1890, with its three species *C. signiferum* Wulp, 1890 (type species), *C. thompsoni* Guimarães, 1977 and *C. sabroskyi* Guimarães, 1977, presents a somewhat confusing taxonomic history. Shortly after its original description, it was considered a synonym of the closely resembling genus *Oestrophasia* Brauer & Bergenstamm, 1889 by BRAUER & BERGENSTAMM (1893), who placed it within the subfamily Oestrophasiinae (= Oestrophasiini, in part). COQUILLET (1897) confirmed BRAUER & BERGENSTAMM'S (1893) synonymy and further included, among other genera, *Euoestrophasia* Townsend, 1892 in the synonymic list of *Oestrophasia*. However, TOWNSEND (1936) maintained *Euoestrophasia* as valid and placed this genus, along with *Oestrophasia*, in the Glaurocarini tribe sensu Townsend (Tachininae). A few decades afterwards, GUIMARÃES (1971, 1977) made some fundamental contributions to this group. First, he recognized that *Cenosoma*, in addition to five other genera, would be best placed in Proseninae (= Dexiinae, in part), and removed from this tribe the genera that currently comprise Glaurocarini, i.e., *Glaurocara* Thomson and *Semisuturia* Malloch, 1927 (GUIMARÃES 1971). Later, GUIMARÃES (1977) revised the tribe Oestrophasiini and considered it with just the following four

genera: *Cenosoma*, *Jamacaria* Curran, 1928, *Oestrophasia* and *Euoestrophasia*, removing the monotypic genus *Mesembrinormia* Townsend, 1931, currently an unplaced genus of Tachininae (O'HARA et al. 2020). In his revision of *Cenosoma*, GUIMARÃES (1977) conclusively presented the evidence (e.g., female ovipositor with sternite 8 with a piercing structure) that this genus is distinct from others of its tribe, adding a consistent diagnosis to it and describing two new species: *C. thompsoni* Guimarães, 1977 and *C. sabroskyi* Guimarães, 1977. Nevertheless, *Cenosoma* was once again considered a synonym of *Oestrophasia*, this time by WOOD (1987), who did not provide any justification. This new hypothesis was later maintained by O'HARA & WOOD (1998). A few years later, another hypothesis was put forward for this genus: it was considered as a subgenus of *Oestrophasia* by O'HARA & WOOD (2004), followed by O'HARA et al. (2020). Together with its allied genera, *Cenosoma* was included in a phylogenetic analysis of Dufouriini by SANTIS & NIHEI (2022), which provided the phylogenetic evidence that *Cenosoma* is a monophyletic genus within the Oestrophasiini tribe and is indeed a distinct genus from *Oestrophasia*. Additionally, Oestrophasiini was recovered as a strongly supported clade defined by 19 unambiguous synapomorphies, being sister to Dufouriini with three synapomorphies (SANTIS & NIHEI 2022). Furthermore, *Oestrophasia* is the sister group

of *Cenosoma*, *Euoestrophasia* and *Jamacaria* (SANTIS & NIHEI 2022, clade 11).

This paper describes and illustrates a new species of *Cenosoma* from Brazil and Guyana, based on male and female specimens. An updated key to the four known species of *Cenosoma* is given based on GUIMARÃES'S (1977) revision of the genus. Finally, as host records for the tribe are very scarce, an updated host record list for Oestrophiini is provided.

### Material and methods

The examined material is deposited at the Natural History Museum, London, UK (NHMUK) and Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil (MZSP). The new host record for *E. panamensis* Guimarães, 1977 is based on a label pinned together with the specimen. Label data are presented within quotation marks for each label, with forward slashes indicating line breaks and semicolons separating different labels.

To study the adult morphology, dried and pinned specimens were examined under a Leica EZ4 stereomicroscope. The terminology follows CUMMING & WOOD (2017). The photographs were taken with a Leica DFC420 digital camera coupled to a Leica MZ16 stereomicroscope. The images were obtained through the software LAS V4.1, then stacked in the software Helicon Focus 5.3.14 and edited in Adobe Photoshop CS6 and Adobe Illustrator CS6.

### Results

#### Genus *Cenosoma* Wulp, 1890

*Cenosoma* Wulp, 1890a: 44 [in key] (WULP 1890b: 166, description). Type species: *Cenosoma signifera* Wulp, 1890, by subsequent monotypy of WULP (1890b: 167).

#### References

BRAUER & BERGENSTAMM (1893: 218, as synonym of *Oestrophasia*); COQUILLET (1897: 70, key to species of *Oestrophasia*, with *Cenosoma* and *Euoestrophasia* in synonymy); TOWNSEND (1936: 94, diagnosis of adults and immatures of Glaurocarini, incl. *Cenosoma*); TOWNSEND (1938: 323, redescription); SABROSKY & ARNAUD (1965: 979, catalogue of Nearctic Diptera); GUIMARÃES (1971: 19, catalogue of Neotropical Tachinidae); MESNIL (1973: 1228, discussion on the classification of *Oestrophasia* and *Cenosoma*, whereby these genera should in his opinion be placed in his Old World group Campogastrina [= Dufouriini, in part]); GUIMARÃES (1977: 217, key to Oestrophiini genera; 222, revision, with description of *C. thompsoni* and *C. sabroskyi*); WOOD (1987: 1260, as synonym of *Oestrophasia*); O'HARA & WOOD (1998: 754, 764, synonymy and new combinations of WOOD [1987]); O'HARA & WOOD (2004: 40, catalogue of Nearctic Tachinidae; as subgenus of *Oestrophasia*); WOOD & ZUMBADO (2010: 1391, as synonym of *Oestrophasia* in key to Central American Tachinidae; 1409, comments about distribution and hosts [as subgenus of *Oestrophasia*]); O'HARA & HENDERSON (2020: 54, as subgenus of *Oestrophasia*; world checklist of tachinid genera); O'HARA et al. (2020: 95, as subgenus of *Oestrophasia*; checklist of World Tachinidae); SANTIS &

NIHEI (2022, phylogenetic hypothesis on Oestrophiini incl. *Cenosoma*; 32, revalidation of *Cenosoma* as a genus distinct from *Oestrophasia*).

### Key to genera of Oestrophiini

Following the phylogenetic results of SANTIS & NIHEI (2022), *Cenosoma* is regarded as a distinct genus from *Oestrophasia*. In order to differentiate *Cenosoma* from *Oestrophasia* and other oestrophiini genera, the following key, modified from GUIMARÃES (1977), is proposed:

- 1 Abdominal syntergite 1+2 and tergite 3 with a distinct row of marginal setae in male; thorax with scutum blackish and scutellum entirely yellow ..... ***Jamacaria* Curran, 1928**
- Abdominal syntergite 1+2 and tergite 3 without a row of marginal setae; thorax with scutum usually yellowish with black markings, when entirely blackish (as in *Oestrophasia clausa* Brauer & Bergenstamm, 1889) scutellum not entirely yellow, presenting anterior margin blackish..... **2**
- 2 Fronto-orbital plate in both sexes with one or two rows of 5–7 proclinate orbital setae, the outer row diverging in female; vibrissae usually weak, hardly differentiated from subvibrissal setae; microtype eggs with exochorion bearing black pigmentation (see SANTIS & NIHEI 2022, fig. 4B)..... ***Oestrophasia* Brauer & Bergenstamm, 1889**
- Male without fronto-orbital setae; female with 3 or 4 strong proclinate fronto-orbital setae; vibrissae distinct from subvibrissal setae; microtype eggs with exochorion not bearing visible pigmentation, transparent (see SANTIS & NIHEI 2022, fig. 4C)..... **3**
- 3 Female with sternite 8 conspicuously visible and modified into an acutely pointed piercing structure (see SANTIS & NIHEI 2022, fig. 19B); R<sub>4+5</sub> bare or with few bristles at base; male genitalia with surstyli and cerci narrow in posterior view and cerci slightly tapered in distal portion in lateral view ..... ***Cenosoma* Wulp, 1890**
- Female with sternite 8 unmodified, as a simple plate; R<sub>4+5</sub> usually bristled from 1/4 to over 1/2 way to crossvein r-m; male genitalia with surstyli and cerci broad in posterior view and cerci well tapered in distal portion in lateral view..... ***Euoestrophasia* Townsend, 1892**

In addition, to further identify *Cenosoma* one can use the key for Tachinidae found in the Manual of Central American Diptera (WOOD & ZUMBADO 2010), where it is keyed as a synonym of *Oestrophasia*. Finally, *Cenosoma* was recovered by SANTIS & NIHEI (2022) as a monophyletic genus bearing three synapomorphies in the female terminalia: sternite 8 elongated (SANTIS & NIHEI 2022, character 172: 2); sternite 10 sharp (SANTIS & NIHEI 2022, character 174: 4); presence of one spiracle (SANTIS & NIHEI 2022, character 177: 1).

### Distribution

Canada (Ontario province [New record]); USA (California, Delaware, Louisiana, Georgia, New York, Nevada, New Hampshire, North Carolina, Pennsylvania, Virginia, Florida states); Mexico (Guerrero, Coahuila, Veracruz [New record] states); Cuba (Matanzas province); Costa Rica (Cártago province); Guyana; Brazil (Mato Grosso do Sul [New record], Rio de Janeiro [New record], São Paulo, Paraná [New record] states).



Key to species of *Cenosoma* Wulp, 1890

[modified from GUIMARÃES (1977)]

- 1 Both sexes with anepimeron with a circular black spot (Figs. 1, 2)..... 2  
 - Both sexes with anepimeron entirely yellow..... 3  
 2 Greater ampulla, katapisternum, katatergite and anatergite yellow..... *C. thompsoni* Guimarães, 1977  
 - Greater ampulla brownish; katapisternum black anteriorly; katatergite and anatergite black on posteroventral margin (Figs. 1, 2)..... *C. catiae* sp. n.  
 3 Abdomen shiny black in ground color, yellowish at base; scutum reddish yellow..... *C. sabroskyi* Guimarães, 1977  
 - Abdomen yellow in ground color; scutum yellow to reddish, sometimes with two or four black spots on sides near outer edge..... *C. signiferum*, Wulp, 1890

*Cenosoma catiae* sp. n.

(Figs. 1–6)

## Diagnosis

Medium-sized tachinid fly with body yellow with black markings; wings bearing conspicuous maculae; female terminalia ending with a piercer structure visible externally. The new species closely resembles *C. thompsoni* as both have anepimeron entirely yellow, but *C. catiae* sp. n. is readily distinguished by bearing greater ampulla brownish, katapisternum black anteriorly, katatergite and anatergite black on posteroventral margin and female terminalia with sternite 8 yellow with a brownish black stripe on lateral margin. In addition, it is easily distinguished from its congeners by bearing the katapisternum black anteriorly, and katatergite and anatergite black on posteroventral margin.

## Type material

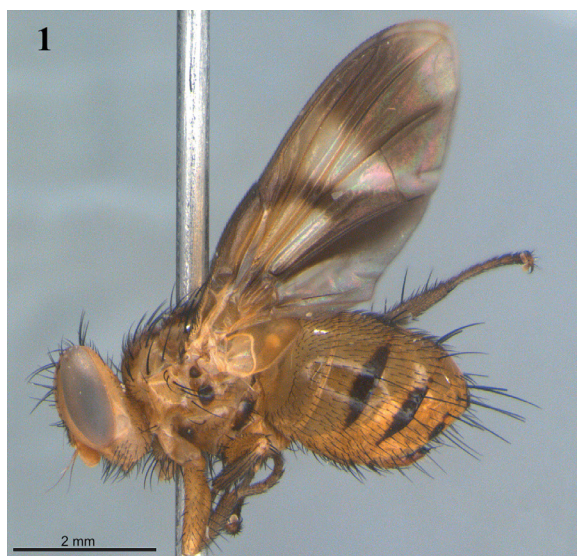
Holotype ♀: “BRASIL: MT: P. N. Chapada dos Guimarães/ Cerrado- Trilha da Pedra, final/ (mirante)/ S15°24'21.8" W055°50'07.5" Malaise 22 / 9.iii. – 18.iv.2012/ Lamas, Nihei & eq. col./ [SISBIOTA CNPq/FAPESP]” “Holótipo” [red label with black borders] (MZSP).

Paratype ♂: “BRIT.GUIANA:/ Kutari Sources. / Jan.-Feb. 1936. / G.A. Hudson. / B.M. 1936-360.” “Parátipo” [green label with black boards]” (NHMUK).

## Description

*Female* (Figs. 1, 3, 4). Body length: 4.67 mm; wing length: 4.78 mm; head height: 1.65 mm; eye height: 1.25 mm.

*Coloration.* Scape and pedicel yellow. Postpedicel orange. Arista black, but basal 1/4 yellow. Head yellow with ocellar triangle dark brown and median region of occiput with two vertical black bands. Genal groove dark yellow with black setulae. Palpus yellow, labellum orange. Thorax yellow but presutural region with 2 lateroposterior dark brown spots and one anterior black stripe on mid portion; postsutural region with four black vittae, 2 narrow ones on lateral margin (2 median ones in male) and 2 anteromedially. Subscutelum and postnotum black. Katapisternum and anepimeron with anterior region black. Meron black. Anatergite and katatergite yellowish, but with black markings on posteroventral margin. Calypters yellowish (posterior margin brownish). Femora black, tibiae and tarsi brownish black. Halter yellow. Tegula black, basicoxa yellow. Wing hyaline with black patterns (Figs. 1, 2). Abdomen yellow but syntergite 1+2 with brownish black band on posterior margin and on mid region, tergites 3 and 4 with the same posterior brown and broad margin extending laterally, tergite 5 with a brownish black triangular spot on the apex and two rounded black spots later-



**Figs. 1–2.** *Cenosoma catiae* sp. n., lateral habitus. 1. Holotype female. 2. Male paratype.





**Figs. 3–6.** *Cenosoma catiae* sp. n., dorsal habitus and head in frontal view. 3, 4. Holotype female. 5, 6. Male paratype.



oventrally. Sternite 8 yellow with black lateral stripe on each margin.

Head. Somewhat flattened in profile. Dichoptic. Eye bare. Ocellar setae developed, proclinate and diverging, inner vertical setae convergent and outer vertical setae diverging, both well developed. Fronto-orbital plate weakly developed in profile. Parafacial bare and somewhat concave in lateral view. Fronto-orbital plate broad, somewhat larger than the width of the frontal vitta. Fronto-orbital plate with 1 reclinate orbital seta and 2 proclinate orbital setae. Postocular setae short, bending forwards. Frons with 8 convergent frontal setae descending to level of scape base. Lunula with small setulae. Arista bare, about twice the length of the antenna. Face and lower facial margin not visible in lateral view. Facial ridge with a row of 4 robust setulae on lower third. Gena height 0.32 mm. Genal dilation scarcely developed and genal groove developed, both covered with setulae. Vibrissae convergent and arising at level of lower facial margin. Prementum and labellum short. Palpus filiform, well developed.

Thorax. Prosternum bare. Proepimeral seta 1. Proepisternal setae 2. Postpronotal lobe with 2 basal setae. Notopleuron with two equal-sized setae. Acrostichal setae 2+3 (last postsutural one strong). Dorsocentral setae 2+3 (last postsutural one longer). Intra-alar setae 1+2. Supra-alar setae 1+2 (first postsutural one longer). Postalar setae 2 (posterior one longer). Scutellum with one (weak) discal, one basal, one lateral, one subapical and one apical pair of setae. Anepimeron setulose. Anepisternal setae with 5 strong setae and with 1 dorsoclininate setula in the upper anterior corner. Katepisternal setae 2 (one anterior and one posterior). Katepimeron with one setula posteriorly. Katatergite and anatergite bare. Posterior spiracle with posterior lappet larger than anterior one.

Wings. Costal spine strong. Base of R vein setulose ventrally, with one seta dorsally and two ventrally. Vein  $M_1$  ending at wing margin close to tip, separately from vein  $R_{4+5}$ . Vein  $R_{4+5}$  with two setae dorsally and one ventrally. Bend of M slightly rounded.

Legs. Fore femur with rows of posterodorsal and posteroventral setae, fore tibia with 1 inframedian posteroventral seta and preapical setae, 1 dorsal, 1 posterodorsal, 2 ventral and 1 posteroventral setae. Mid femur with 2 supramedian posteroventral, 1 dorsal at apical third and 2 posterodorsal setae; mid tibia with 1 supramedian posterodorsal, 2 inframedian posterodorsal and 1 anterodorsal setae, 1 posterodorsal at distal third and preapicals, 1 ventral, 1 posteroventral and 2 anteroventral setae. Hind femur with a row of anterodorsal setae, 2 supramedian posterodorsal setae, 1 anteroventral seta at apical third, 2 anteroventral setae at apical third and 1 posteroventral seta on middle; mid tibia with a row of 7 posterodorsal setae, 7 rows of setae on anterodorsal (long) margin and 1 preapical seta on anteroventral surface. Pulvilli and tarsal claws

not elongate, about the same length as 5th tarsomere.

Abdomen. Elliptical. Syntergite 1+2 with mid-dorsal longitudinal depression extending halfway to posterior margin. Syntergite 1+2 without setae. Tergite 3 with one lateral marginal and one median marginal pair of setae. Tergites 4 and 5 with a row of marginal setae and several irregular discal setae. Sternites hidden.

[Genitalia not dissected (only holotype available).]

*Male* (Figs. 2, 5, 6). Differs from the female as follows. Head height: 2 mm. Eye height: 1.7 mm. Holoptic. Ocellar setae lateroclininate; postocellar setae proclinate; inner vertical setae convergent and outer vertical setae divergent, of the same length. Fronto-orbital plate very narrow, about 1/3 of the frontal vitta. Postsutural region of thorax with four black vittae, 2 narrow ones on median margin. Scutellum with one (weak) discal, one basal, one lateral, one subapical and one apical pair of setae. Pulvilli and tarsal claws elongate, longer than 5th tarsomere. Postabdomen yellow. [Genitalia: not dissected (only paratype available).]

#### Type locality

Brazil, Mato Grosso, Chapada dos Guimarães.

#### Distribution

Guyana (Kutari Sources, easternmost district of Aca-rai Mountains) and Brazil (Mato Grosso).

#### Note

The male and female were associated by following clues typical for the tribe. The black markings on the thorax are of high specific value, as many valid species of Oestrophasiini are diagnosed through these (e.g., GUIMARÃES 1977). The thorax of both sexes of *Cenosoma catiae* **sp. n.** bears anepimerum and katepisternum black anteriorly, greater ampulla brownish and katatergite and anatergite black on posteroventral margin. These characters are sufficiently relevant to regard both specimens as belonging to the same species.

#### Etymology

The specific name is a homage to Dr. CÁTIA ANTUNES DE MELLO-PATIU, formerly from the Departamento de Entomologia (Entomology Department) of the Museu Nacional, Universidade Federal do Rio de Janeiro, who sadly recently passed away (24.xi.2021), for her great contribution to the knowledge of Neotropical Diptera, particularly of the Sarcophagidae family and forensic entomology.

CÁTIA ANTUNES DE MELLO-PATIU was a remarkable Brazilian entomologist, who dedicated her life to the study of the taxonomy, systematics, morphology, phylogeny and biology of the dipteran families Sarcophagidae and Conopidae and also to forensic entomology. A globally recognized professional, she made a significant scientific contribution, including numerous papers, books, book chapters and various presentations at national and international conferences. CÁTIA was born in August 1958 and passed away on November 24th, 2021, leaving a lasting legacy, not only in the scientific community but also in the lives of

all those who had the opportunity to have known her and spent time with her, experiencing her joyful presence. Besides being an excellent and competent professional, CÁTIA was a great person. Generous, friendly, smiling, good-humored, conciliatory, always looking ahead, in addition to being an excellent daughter, wife and mother. Dr. CÁTIA PATIU joined the Museu Nacional in August 1997, fulfilling her lifelong dream of working in this institution. Before becoming a professional, she was a student of the renowned experts in Sarcophagidae Dr. HUGO DE SOUZA LOPES (Instituto Oswaldo Cruz, IOC) and Dr. RITA TIBANA (Museu Nacional/Universidade Federal do Rio de Janeiro). She was a committed and inspiring educator and mentor, guiding students at all levels of education, always devoted to their well-being. She also had a deep love for fieldwork and the field expeditions in the company of her husband, a biologist by choice, were always very enjoyable. She showed a remarkable dedication to the daily care and organization of the scientific collection of insects at the Museu Nacional and following the tragic fire in 2018, she worked tirelessly to recover the entomological collection, demonstrating her unwavering commitment to preserving its invaluable scientific resources. We said goodbye to her with deep sadness, regretting the loss of her presence in our daily work and in the joyful gatherings with colleagues, friends and family. She left two sons and a granddaughter.

#### Taxonomic remarks

*Cenosoma* and *Oestrophasia*, in addition to *Euoestrophasia* and *Jamacaria*, are poorly represented in museum collections, and some species are known only from the type material, e.g., *E. guatemalensis* Guimarães, 1977 and *E. portoricensis* Guimarães, 1977. Also, the species described in the present work is recorded from a single male and female from Guyana and Mato Grosso, Chapada dos Guimarães (Brazil), respectively. The male from Guyana is from Kutari Sources in the easternmost district of

the Acarai Mountains (FRATELLO et al. 2015), one of the four mountain ranges in Guyana that lies along the border shared with Brazil (ALONSO et al. 2008). As this area is poorly explored and presents a unique range of habitats from non-flooded forest to mountain streams, it probably is home to various endemic and undescribed species. Additionally, the distance from Chapada dos Guimarães to the Acarai Mountains is about 1,933 km, and no information about this species is available within this range, as is the case for other species of *Cenosoma* and even other genera of the tribe. Hence, this outline provides compelling evidence that more collecting efforts should be made in order to make this peculiar and interesting group better known. The present work, with the description of a new species, represents an advance in this direction, but we predict that new species of Oestrophasiini will be found in the north of Brazil, mainly in the Amazon Forest. We reached this conclusion by noting that there are various species (mainly of *Euoestrophasia*) that are distributed from the Central America (Guatemala, Porto Rico, Panama, Jamaica) through southern Brazil (Minas Gerais, Rio de Janeiro, São Paulo, Santa Catarina) to Argentina (Buenos Aires) and Uruguay (Montevideo) (GUIMARÃES 1977); yet, no species or distributional records are known from the Amazon and most of the central region of Brazil.

#### Host-parasite list of the tribe Oestrophasiini

The host records of members of Oestrophasiini are known from isolated papers. When GUIMARÃES (1977) revised this tribe, only two records were available, for *Cenosoma signiferum* and *Euoestrophasia aperta* (Brauer

**Table 1.** Summary of known host records for Oestrophasiini

Oestrophasiini species	Coleoptera host	Distribution	References
<i>Cenosoma</i> sp.	<i>Pachnaeus litus</i> (Germar, 1824) (Curculionidae)	Neotropical (Cuba)	GRILLO & ALVAREZ (1984)
	<i>Amphidees latifrons</i> (Sharp, 1891) (Curculionidae)	Neotropical (Mexico)	VELÁZQUEZ et al. (2002)
	<i>Amphidees macer</i> Sharp, 1891 (Curculionidae)	Neotropical (Mexico)	VELÁZQUEZ et al. (2002)
<i>Cenosoma signiferum</i> Wulp, 1890	<i>Colaspis pini</i> Barber, 1937 (Chrysomelidae)	Nearctic (USA)	GUIMARÃES (1971, 1977)
<i>Cenosoma sabroskyi</i> Guimaraes, 1977	<i>Artipus floridanus</i> Horn, 1876 (Curculionidae)	Nearctic (USA)	KOVARIK & REITZ (2005)
<i>Euoestrophasia aperta</i> (Brauer & Bergenstamm, 1889)	<i>Listroderes costirostris</i> Schoenherr, 1826 (Curculionidae)	Nearctic (USA)	PARKER et al. (1950)
<i>Euoestrophasia panamensis</i> Guimaraes, 1977	Undetermined species of Eumolpinae (Chrysomelidae)	Neotropical (Brazil)	Neotropical (Brazil)
<i>Oestrophasia clausa</i> Brauer & Bergenstamm, 1889	<i>Diplotaxis moerens</i> Leconte, 1856 (Scarabaeidae)	Nearctic (USA)	SPANGLER & BURGER (1999)

& Bergenstamm, 1889). An update of the host records is relevant, as all taxa of Oestrophasiini with known biology infect adult Coleoptera, like its two allied tribes Dufouriini and Freareini (SANTIS & NIHEI 2022); this is uncommon for dexiines and for tachinids overall. In addition, the species of this tribe reproduce through microtype eggs, as argued and summarized by SANTIS & NIHEI (2022): small eggs containing the fully developed first instar larva are deposited on leaves to be accidentally eaten by the phytophagous host (THOMPSON 1963). This characteristic is one of the synapomorphies of Oestrophasiini (SANTIS & NIHEI 2022, character 1:2). Since GUIMARÃES'S (1977) work, recent records were available from the literature in addition to those newly presented herein (see Table 1). All records are from the coleopteran families Chrysomelidae, Curculionidae and Scarabaeidae.

### Funding

Financial support was received from CAPES (MDS scholarship: 88882.333078/2019-01), CNPq (SSN research grants: 403165/2016-4, 409847/2021-6, SSN fellowship: 310630/2021-5; MDS research grant: 150141/2022-0), and FAPESP (SSN research grants: 2015/10788-0, 2016/50387-7). MSC is grateful for the financial support of CNPq (Process nr 303414/2018-9). This work was partially funded by the SISBIOTA-DIPTERA research project (CNPq 563256/2010-9, FAPESP 2010/52314-0).

### Acknowledgements

MDS is indebted to NIGEL WYATT (NHMUK) for his kind assistance during a visit to the museum, for kindly allowing the use of the NHMUK Diptera Section's image capturing system and for the loan of material. Special thanks to DANIEL WHITMORE (Staatliches Museum für Naturkunde Stuttgart) and to an anonymous reviewer for their comments, which substantially improved the manuscript.


### References

- ALONSO, L. E., McCULLOUGH, J., NASKRECKI, P., ALEXANDER, E. & WRIGHT, H. E. (2008): A rapid biological assessment of the Konashen Community Owned Conservation Area, Southern Guyana. *RAP Bulletin of Biological Assessment* **51**, 90 pp.; Arlington (Conservation International).  
<https://doi.org/10.1896/978-1-934151-24-2>
- BRAUER, F. & BERGENSTAMM, J. E. VON (1893): Die Zweiflügler des Kaiserlichen Museums zu Wien. VI. Vorarbeiten zu einer Monographie der Muscaria schizometopa (exclusive Anthomyiidae). Pars III, 152 pp.; Vienna (F. Tempsky).
- COQUILLETT, D. W. (1897): Revision of the Tachinidae of America north of Mexico. A family of parasitic two-winged insects. – United States Department of Agriculture. Division of Entomology. Technical Series 7: 1–156.  
<https://doi.org/10.5962/bhl.title.9264>
- CUMMING, J. M. & WOOD, D. M. (2017): Adult morphology and terminology. – In: KIRK-SPRIGGS, A. H. & SINCLAIR, B. J. (eds.): *Manual of Afrotropical Diptera*. Vol. 1. Suricata 4, pp. 89–133; Pretoria (South African National Biodiversity Institute Graphics & Editing).
- FRATELLO, S. A., NAKAHARA, S., BRÉVIGNON, C. R. & HARVEY, D. J. (2015): Two new species of *Euptychia* Hübner, 1818 (Lepidoptera: Nymphalidae: Satyrinae) from the Guiana Shield, with notes on *E. marceli* Brévignon, 2005 and *E. rufocincta* Weymer, 1911. – *Journal of the Lepidopterists' Society* **69**: 293–306.  
<https://doi.org/10.18473/lepi.69i4.a5>
- GRILLO, H. & ALVAREZ, M. (1984): Estudios biológicos de *Cenosoma* n. sp. (Diptera; Tachinidae; Oestrophasiini) parásito de los adultos de *Pachneus litus* Germar (Coleoptera: Curculionidae). – *Centro Agrícola* **11**: 95–118.
- GUIMARÃES, J. H. (1971): Family Tachinidae (Larvaevoridae). – In: PAPAVERO, N. (ed.): *A catalogue of the Diptera of the Americas South of the United States*, Vol. 104, pp. 1–333; São Paulo (Museu de Zoologia, Universidade de São Paulo).
- GUIMARÃES, J. H. (1977): A review of the tribe Oestrophasiini Brauer & Bergenstamm (Diptera, Tachinidae). – *Papéis Avulsos de Zoologia* **30**: 215–238.
- KOVARIK, P. W. & REITZ, S. R. (2005): *Oestrophasia (Cenosoma) sabroskyi* (Diptera: Tachinidae), a parasitoid of *Artipus floridanus* (Coleoptera: Curculionidae): taxonomy and bionomics. – *Annals of the Entomological Society of America* **98**: 245–251.  
[https://doi.org/10.1603/0013-8746\(2005\)098\[0245:OCSDTA\]2.0.CO;2](https://doi.org/10.1603/0013-8746(2005)098[0245:OCSDTA]2.0.CO;2)
- MESNIL, L. P. (1973): 64g. Larvaevorinae (Tachininae). – In: LINDNER, E. (ed.): *Die Fliegen der Palaearktischen Region 10 (Lieferung 299)*, pp. 1169–1232; Stuttgart (E. Schweizerbart'sche Verlagsbuchhandlung).
- O'HARA, J. E. & HENDERSON, S. J. (2020): World genera of the Tachinidae (Diptera) and their regional occurrence. Version 11, 90 pp. Available from: <http://www.nadsdiptera.org/Tach/WorldTachs/Genera/Worldgenera.htm> (accessed 2 December 2021).
- O'HARA, J. E., HENDERSON, S. & WOOD, D. M. (2020): Preliminary checklist of the Tachinidae (Diptera) of the world. Version 2.1, 1039 pp. Available from: <http://www.nadsdiptera.org/Tach/WorldTachs/Checklist/Worldchecklist.html> (accessed 2 December 2021).
- O'HARA, J. E. & WOOD, D. M. (1998): Tachinidae (Diptera): nomenclatural review and changes, primarily for America north of Mexico. – *The Canadian Entomologist* **130**: 751–774.  
<https://doi.org/10.4039/Ent130751-6>
- O'HARA, J. E. & WOOD, D. M. (2004): Catalogue of the Tachinidae (Diptera) of America north of Mexico. – *Memoirs on Entomology, International* **18**: 1–410.
- PARKER, H. L., BERRY, P. A. & SILVEIRA, A. (1950): Vegetable weevils and their natural enemies in Argentina and Uruguay. – United States Department of Agriculture Technical Bulletin **1016**: 1–28.
- SABROSKY, C. W. & ARNAUD, P. H. JR. (1965): Family Tachinidae (Larvaevoridae). – In: STONE, A., SABROSKY, C. W., WIRTH, W. W., FOOTE, R. H. & COULSON, J. R. (eds.): *A catalog of the Diptera of America north of Mexico*. Volume 276, pp. 961–1108; Washington, D.C. (United States Department of Agriculture).
- SANTIS, M. D. & NIHEI, S. S. (2022): Phylogenetic analysis of the tribe Dufouriini (Diptera, Tachinidae) using a total evidence approach based on adult and immature stages. – *Arthropod Systematics & Phylogeny* **80**: 1–38.  
<https://doi.org/10.3897/asp.80.e69618>



- SPANGLER, H. G. & BURGER, J. F. (1999): *Oestrophasia clausa* (Diptera: Tachinidae), a parasite of adult *Diplotaxis moerens* (Coleoptera: Scarabaeidae). – *Entomological News* **110**: 123–124.
- TOWNSEND, C. H. T. (1936): Manual of myiology in twelve parts. Part III. Oestroid classification and habits. Gymnosomatidae to Tachinidae, pp. 303; Itaquaquecetuba (Charles Townsend & Filhos).
- TOWNSEND, C. H. T. (1938): Manual of myiology in twelve parts. Part VII. Oestroid generic diagnoses and data. Gymnosomatini to Senostomatini, pp. 428; Itaquaquecetuba (Charles Townsend & Filhos).
- VELÁZQUEZ, D. N. J., GUERRERO, R. E., SÁNCHEZ, V. V. M. & AGUIRRE, U. L. A. (2002): Biología y comportamiento de *Oestrophasia* sp. parasitoide del picudo de la yema del manzano *Amphidees* spp. – *Entomología Mexicana* **1**: 289–291.
- WOOD, D. M. (1987): Tachinidae. – In: McALPINE, J. F., PETERSON, B. V., SHEWELL, G. E., TESKEY, H. J., VOCKEROTH, J. R. & WOOD, D. M. (eds.): Manual of Nearctic Diptera. Volume 2. Research Branch, Agriculture Canada. Monograph 28, pp. 1193–1269; Ottawa (Biosystematics Research Centre).
- WOOD, D. M. & ZUMBADO, M. A. (2010): Tachinidae (tachinid flies, parasitic flies). – In: BROWN, B. V., BORKENT, A., CUMMING, J. M., WOOD, D. M., WOODLEY, N. E. & ZUMBADO, M. A. (eds.): Manual of Central American Diptera. Volume 2, pp. 1343–1417; Ottawa (NRC Research Press).
- WULP, F.M. VAN DER (1890a): Fam. Muscidae. – In: GODMAN, F. D. & SALVIN, O. (eds.): Biologia Centrali-Americana, or, contributions to the knowledge of the fauna and flora of Mexico and Central America. Zoologia. Class Insecta. Order Diptera. Vol. II. [1888–1903], pp. 41–56 [cont.]; London (Taylor & Francis).
- WULP, F.M. VAN DER (1890b): Fam. Muscidae [cont.]. – In: GODMAN, F. D. & SALVIN, O. (eds.): Biologia Centrali-Americana, or, contributions to the knowledge of the fauna and flora of Mexico and Central America. Zoologia. Class Insecta. Order Diptera. Vol. II. [1888–1903], pp. 145–176; London (Taylor & Francis).

Authors' addresses:

<sup>1</sup>Museu Nacional/UFRJ, Quinta da Boa Vista, São Cristóvão, 20940-040, Rio de Janeiro, RJ, Brazil;  
e-mail: mrclsantis@gmail.com (MDS; corresponding author); <https://orcid.org/0000-0003-4949-64330> (MDS),  
 <https://orcid.org/0000-0002-5340-395X> (MSC)

<sup>2</sup>Departamento de Zoologia, Instituto de Biociências, Universidade de São Paulo, 05508-090, São Paulo, SP, Brazil;  
 <https://orcid.org/0000-0002-6887-6282>

ZooBank registration: <https://zoobank.org/References/073B52E5-9458-45BB-A63D-554DA41D9DAA>

Manuscript received: 03.VIII.2023; accepted: 15.XII.2023.