

NOTA / NOTE

The insects of the Gaia Biological Park, northern Portugal (4th note): Preliminary list of the Diptera (Insecta).

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Abstract: Twenty-six species of Diptera are recorded for the first time from the Gaia Biological Park (northern Portugal), raising the known local diversity of this group to 46 species. A list including the novelties and the previously recorded 20 species is presented and the particular interest of the records of two of the novelties is highlighted.

Key words: Diptera, Gaia Biological Park, northern Portugal, novelties, bibliographic catalogue.

Resumen: Los insectos del Parque Biológico de Gaia, norte de Portugal (4ª nota): Lista preliminar de los Diptera (Insecta). Veintiséis especies de insectos pertenecientes al orden Diptera se registran por primera vez del Parque Biológico de Gaia (norte de Portugal), elevando el catálogo local del grupo a 46 especies. Se presenta una lista con las novedades y las 20 especies citadas anteriormente y se comenta el interés especial de las citas de dos de las novedades.

Palabras clave: Diptera, Parque Biológico de Gaia, norte de Portugal, novedades, citas interesantes.

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Introduction

The insect fauna of the Gaia Biological Park (PBG, from the Portuguese "Parque Biológico de Gaia") has recently been the subject of a number of papers dealing with the orders Coleoptera, Diptera, Hemiptera, Hymenoptera, Lepidoptera, Mecoptera and Orthoptera (CARLES-TOLRÁ, 2009; CORLEY *et al.*, 2009; FERREIRA *et al.*, 2009; GROSSO-SILVA & SOARES-VIEIRA, 2009a, 2009b, 2009c, 2011; GROSSO-SILVA, 2010). These papers are the result of an ongoing study of this Park's invertebrate fauna, conducted by CIBIO-UP, whose main goal is the production of an inventory of the invertebrate species that occur in the area (see GROSSO-SILVA & SOARES-VIEIRA, 2009a for a description of the Park and details of the study) and contain, globally, records of 182 species.

In this contribution we present a list of the Diptera hitherto found in the PBG, including the species cited in the literature and those recorded here for the first time.

Methods

The sampling techniques employed are those presented in GROSSO-SILVA & SOARES-VIEIRA (2009a) with the addition of yellow pan traps.

The Diptera list of the PBG is presented in Table 1, including the species previously recorded in the literature with the respective references and the additions to the list with distributional data. As

in most of the previous studies mentioned in the introduction, the distributional data is presented in 1 km UTM grid coordinates. Unless otherwise stated, the studied specimens were collected and identified by the authors and are preserved in the collection of CIBIO-UP. The abbreviation "obs." indicates specimens that were identified in the field and not collected and the word "photo" indicates specimens that were photographed in the field but not collected. A set of photographs taken in the PGB by Jorge Gomes was analysed and a new record was obtained, as mentioned in Table 1.

Results and Discussion

As mentioned before, one of the papers resulting from the ongoing study of the PGB's invertebrate fauna dealt with the order Diptera. This is CARLES-TOLRÁ (2009), which includes records of 14 species belonging to six families. The literature survey conducted provided three very recent additional references with data of the Diptera occurring in the Park, namely those of ROHÁČEK *et al.* (2009), in which one Anthomyzidae species was recorded from the PGB, EBEJER & ANDRADE (2010), which contains records of four species of Platypezidae from the PGB, and ROHÁČEK & ANDRADE (2011), which contains the first record of one Anthomyzidae species and additional data about the species previously recorded by ROHÁČEK *et al.* (2009). As a result, the global bibliographic catalogue of the Park currently includes 20 species.

The new data presented in this study refers to 26 species which are recorded for the first time from the PGB, raising the Diptera diversity recorded from the Park to 46 species. The records of the following species are considered of particular interest:

- ***Sargus bipunctatus* (Scopoli, 1763) (Stratiomyidae) (Fig. 1)**
New species for the Portuguese fauna. The genus *Sargus* Fabricius, 1798 was recently added to the Portuguese fauna, with the record of *Sargus cuprarius* (Linnaeus, 1758) (CARLES-TOLRÁ & ROSADO, 2009).
- ***Milesia crabroniformis* (Fabricius, 1775) (Syrphidae)**
Second Portuguese record for the species, which was very recently added to the country's list with a record from Manteigas, in Serra da Estrela (RICARTE *et al.*, 2009).



Fig. 1. - *Sargus bipunctatus* (Scopoli, 1763), new stratiomyid for the Portuguese fauna.

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Table 1. - List of the Diptera recorded from the Gaia Biological Park.

Species	Distribution	Reference
Fam. Acroceridae		
<i>Cyrtus gibbus</i> (Fabricius, 1794)	29TNF3749: 15-08-2010 (1)	This study
Fam. Anisopodidae		
<i>Sylvicola cinctus</i> (Fabricius, 1787)	29TNF3749: 15-12-2008 (43♂ + 88♀)	CARLES-TOLRÁ (2009: 443)
Fam. Anthomyzidae		
<i>Anagnota major</i> Roháček & Freidberg, 1993	29TNF34: 06-09-2009 (1♀), 24-09-2009 (1♀)	ROHÁČEK & ANDRADE (2011: 194)
<i>Paranthomyza nitida</i> (Meigen, 1838)	29TNF34: 06-09-2009 (4♀), 24-09-2009 (4♂ + 2♀), 27-09-2010 (2♂ + 6♀), 22-10-2010 (4♂ + 1♀), 06-11-2010 (1♂)	ROHÁČEK <i>et al.</i> (2009: 546), ROHÁČEK & ANDRADE (2011: 194)
Fam. Bombyliidae		
<i>Bombylilla atra</i> (Scopoli, 1763)	29TNF3749: 19-05-2008 (1♂)	CARLES-TOLRÁ (2009: 444)
Fam. Calliphoridae		
<i>Calliphora vicina</i> Robineau-Desvoidy, 1830	29TNF3749: 25-05-2010 (1), 21-10-2010 (1)	This study
<i>Stomorhina lunata</i> (Fabricius, 1805)	29TNF3749: 15-05-2008 (1, photo, André van Eck det.)	This study
Fam. Conopidae		
<i>Sicus ferrugineus</i> (Linnaeus, 1761)	29TNF3749: 19-05-2008 (1♂)	CARLES-TOLRÁ (2009: 444)
Fam. Heleomyzidae		
<i>Suillia affinis</i> (Meigen, 1830)	29TNF3749: 15-12-2008 (6♂ + 4♀)	CARLES-TOLRÁ (2009: 445)
<i>Suillia discolor</i> Czerny, 1927	29TNF3749: 15-12-2008 (4♂)	CARLES-TOLRÁ (2009: 445)
<i>Suillia notata</i> (Meigen, 1830)	29TNF3749: 15-12-2008 (5♂)	CARLES-TOLRÁ (2009: 445)
<i>Suillia variegata</i> (Loew, 1862)	29TNF3749: 15-12-2008 (2♀)	CARLES-TOLRÁ (2009: 445)
<i>Tephrochlamys flavipes</i> (Zetterstedt, 1838)	29TNF3749: 15-12-2008 (3♂ + 5♀)	CARLES-TOLRÁ (2009: 445)
<i>Tephrochlamys rufiventris</i> (Meigen, 1830)	29TNF3749: 15-12-2008 (1♀)	CARLES-TOLRÁ (2009: 445)
Fam. Muscidae		
<i>Poliates meridionalis</i> Peris & Llorente, 1963	29TNF3749: 15-05-2010 (1, col. Rui Andrade)	This study
<i>Stomoxys calcitrans</i> (Linnaeus, 1758)	29TNF3749: 30-04-2010 (1)	This study
Fam. Pallopteridae		
<i>Toxoneura muliebris</i> (Harris, 1780)	29TNF3749: 15-10-2010 (1, photo)	This study
Fam. Platypezidae		
<i>Agathomyia antennata</i> (Zetterstedt, 1819)	29TNF34: 24-09-2009 (1♂), 15-10-2009 (1♂)	EBEJER & ANDRADE (2010: 454)
<i>Lindneromyia dorsalis</i> (Meigen, 1804)	29TNF34: 15-10-2009 (1♀), 27-09-2010 (1♂)	EBEJER & ANDRADE (2010: 454)
<i>Paraplatypeza atra</i> (Meigen, 1804)	29TNF34: 24-09-2009 (1♀)	EBEJER & ANDRADE (2010: 454)
<i>Protoclythia rufa</i> (Meigen, 1830)	29TNF34: 15/17-10-2010 (3♂)	EBEJER & ANDRADE (2010: 454)
Fam. Sciomyzidae		
<i>Trypetoptera punctulata</i> (Scopoli, 1763)	29TNF3749: 17-09-2010 (1)	This study
Fam. Stratiomyidae		
<i>Chloromyia formosa</i> (Scopoli, 1763)	29TNF3749: 19-05-2008 (1♂)	CARLES-TOLRÁ (2009: 444)
<i>Hermetia illucens</i> (Linnaeus, 1758)	29TNF3749: 17-10-2009 (1 + 2 obs.), 17-10-2010 (2 obs.)	This study
<i>Pachygaster leachii</i> Curtis, 1824	29TNF3649: 30-08-2008 (1♂ + 1♀, col. Rui Andrade)	This study
<i>Sargus bipunctatus</i> (Scopoli, 1763)	29TNF3749: 16-10-2010 (1, col. Rui Andrade), 21-10-2010 (1, col. CIBIO-UP; 1♀, col. André van Eck)	This study

Table 1. - List of the Diptera recorded from the Gaia Biological Park (cont.).

Species	Distribution	Reference
Fam. Syrphidae		
<i>Dasysyrphus albostrigatus</i> (Fallén, 1817)	29TNF3749: 09-06-2008 (1♀)	CARLES-TOLRÁ (2009: 444)
<i>Episyrphus balteatus</i> (De Geer, 1776)	29TNF3749: 02-11-2006 (1, photographed by Jorge Gomes), 06-05-2009 (1), 20-05-2009 (1, photo), 23-05-2009 (1, photo), 13-06-2009 (1, photo), 17-10-2009 (10 obs.), 17-09-2010 (1 obs.), 17-10-2010 (1 obs.), 21-10-2010 (1♀, André van Eck obs.)	This study
<i>Eristalinus taeniops</i> (Wiedemann, 1818)	29TNF3749: 21-10-2010 (1, photo, André van Eck det.; 10, André van Eck obs.)	This study
<i>Eristalis arbustorum</i> (Linnaeus, 1758)	29TNF3749: 01-08-2007 (1, photo), 11-10-2007 (1, photo), 05-10-2008 (1♂), 21-10-2010 (1, photo; 2♂ + 2♀, André van Eck obs.): all photos André van Eck det.	This study
<i>Eristalis similis</i> (Fallén, 1817)	29TNF3749: 29-02-2008 (1, photo, André van Eck det.), 21-10-2010 (10, André van Eck obs.)	This study
<i>Eristalis tenax</i> (Linnaeus, 1758)	29TNF3749: 06-01-2009 (1, photo), 21-10-2010 (15, André van Eck obs.); 29TNF3649: 24-08-2009 (1, photo); all photos André van Eck det.	This study
<i>Eupeodes latifasciatus</i> (Macquart, 1829)	29TNF3749: 21-10-2010 (1♀, André van Eck obs.)	This study
<i>Melanostoma mellinum</i> (Linnaeus, 1758)	29TNF3749: 05-10-2008 (1♂ + 1♀, André van Eck det.), 21-10-2010 (1♂, André van Eck obs.)	This study
<i>Melanostoma scalare</i> (Fabricius, 1794)	29TNF3749: 15-03-2009 (1, André van Eck det.)	This study
<i>Meliscaeva auricollis</i> (Meigen, 1822)	29TNF3749: 17-10-2009 (1, André van Eck det.), 21-10-2010 (1♂, André van Eck obs.)	This study
<i>Milesia crabroniformis</i> (Fabricius, 1775)	29TNF3650: 02-07-2009 (1, obs.)	This study
<i>Myathropa florea</i> (Linnaeus, 1758)	29TNF3749: 01-08-2007 (1, photo, André van Eck det.), 24-05-2009 (1♀, André van Eck det.), 21-10-2010 (3, André van Eck obs.)	This study
<i>Neoascia podagrica</i> (Fabricius, 1775)	29TNF3749: 21-10-2010 (2♀, André van Eck leg., col. et det.)	This study
<i>Paragus haemorrhous</i> Meigen, 1822	29TNF3749: 21-10-2010 (1♂, André van Eck leg., col. et det.)	This study
<i>Riponnensia splendens</i> (Meigen, 1822)	29TNF3749: 16-04-2008 (1♂)	CARLES-TOLRÁ (2009: 444)
<i>Sphaerophoria scripta</i> (Linnaeus, 1758)	29TNF3749: 01-08-2007 (1, photo, André van Eck det.), 21-10-2010 (1♂ + 2♀, André van Eck obs.)	This study
<i>Syrirta pipiens</i> (Linnaeus, 1758)	29TNF3749: 21-10-2010 (3♂ + 2♀, André van Eck obs.)	This study
<i>Volucella zonaria</i> (Poda, 1761)	29TNF3749: 06-09-2007 (1♀)	CARLES-TOLRÁ (2009: 444)
<i>Xylota segnis</i> (Linnaeus, 1758)	29TNF3749: 01-08-2007 (1♂)	CARLES-TOLRÁ (2009: 444)
Fam. Ulidiidae		
<i>Physiphora alceae</i> (Preysslner, 1791)	29TNF3749: 15-05-2010 (1♂, col. Rui Andrade)	This study