



DISTRIBUTION OF THE SUBFAMILY MESEMBRINELLINAE (DIPTERA: CALLIPHORIDAE) IN THE TINGUÁ BIOLOGICAL RESERVE, RJ, BRAZIL

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INTRODUCTION

Many populations of diptera are typical of forested regions, but the population dynamics of these wild species have undergone modifications over the last three decades due to anthropic factors (Marinho et al., 2006) and the introduction of exotic species (D'Almeida & Lopes, 1983). Wild species have been observed in urban environments, and synanthropic species in ombrophilous forests (Paraluppi & Castellón, 1994). Calliphorids, which are insects characterized by their metallic blue, green, purple or copper coloring, at least on the abdomen, belong to the Order Diptera, Suborder Brachycera, division Cyclorrhapha, series Schizophora. They are divided into five subfamilies: Mesembrinellinae, Calliphorinae, Rhiniinae, Toxotarsinae and Chrysomyinae (Mello, 2003). The insects of the subfamily Mesembrinellinae have translucent wings with a strongly curved M_1 vein and an anterior thoracic stigma with a single operculum. Mesembrinellinae are closely linked to the wild environment and are considered to be asynanthropic, i.e., not adapted to human-made alterations (Mello et al. 2006). They comprise a small group of exclusively Neotropical diptera containing genera and species in which the females do not lay eggs, but instead present a modification of the principal oviduct, which increases in volume, allowing a single egg produced in the ovary to be launched into the oviduct (Mello, 2003).

Knowledge of the biodiversity of the Tinguá Biological Reserve may contribute to phylogenetic and biogeographical studies, as well as help in forest management, environmental management, and species preservation, by detecting areas with high biodiversity indices and providing information to underpin conservation policies.

OBJECTIVES

Evaluate the distribution of Mesembrinellinae in three distinct sites in the Tinguá Biological Reserve from June 2006 through March 2007.

MATERIAL AND METHODS

Six black homemade traps were distributed as described by Ferreira (1978) and Linhares (1981), containing 400 grams of sardines defrozen in the refrigerator 24 hours prior to exposure. The collections were carried out monthly, from June 2006 to March 2007. The traps were set up at three different sites in the forest at a height of approximately 1.5 meters from the ground, according to Neto et al. (1995). The first site (Site A) was located at the edge of the forest, while the second (Site B) and third (Site C) were located along the Estrada do Comércio road 1000 and 500 meters into the forest, respectively. Two traps were set up at each site, five meters apart, and exposed for 48 hours. The captured insects were killed and placed in plastic bags identified with the name of the site and location of the trap. The traps were then taken to the Laboratory of Diptera Studies (LED/UNIRIO), where the insects were identified taxonomically based on Mello's (2003) identification key.

RESULTS AND DISCUSSION

During the period of this study, 7663 calliphorids were collected, 2824 of which belonged to the subfamily Mesembrinellinae, distributed among *Laneela nigripes* (1197), *Mesembrinella bellardiana* (4), *Mesembrinella peregrina* (1252), *Mesembrinella semihyalina* (260), *Mesembrinella bicolor* (35), *Huascaromusca aeneiventris* (32), *Huascaromusca purpurata* (2), *Eumesembrinella pauciseta* (41) and

Eumesebrinella quadrisulcata (1). Mesembrinellinae were found to peak in September, when 764 specimens were collected. The site with the highest concentration of this subfamily was B, with 1367 individuals, followed by site C with 966 and A with 491. This subfamily occurred at all the sites and in every month, and the most frequent species were *L. nigripes*, *M. peregrina* and *M. semihyalina*. These species displayed an obvious preference for the sites deeper in the forest, which is congruous with the findings of Furusawa & Cassino (2006) in their study of a secondary Atlantic Forest fragment in the municipality of Engenheiro Paulo de Frontin, in the middle Paraíba, state of Rio de Janeiro.

CONCLUSION

Mesembrinellinae occurred at all the sites, showing a greater affinity for the sites deeper within the forest, reinforcing the asynanthropic nature of this subfamily.

BIBLIOGRAPHIC REFERENCES

- D'Almeida, J.M.; Lopes, H.S.1983.** Sinantropia de Dípteros Muscóides (Calliphoridae) no Estado do Rio de Janeiro. Arquivo da Universidade Federal Rural do Rio de Janeiro, Rio de Janeiro, **6**: 39-48.
- Ferreira, M. J. M.1978.** Sinantropia de dípteros muscóides de Curitiba, Paraná. I. Calliphoridae. Revista Brasileira de Biologia, São Paulo, **38 (2)**: 445-454.
- Furusawa G. P., Cassino P.C. R. 2006.** Ocorrência e Distribuição de Calliphoridae (Diptera, Oestroidea) em um Fragmento de Mata Atlântica Secundária no Município de Engenheiro Paulo de Frontin, Médio Paraíba, RJ. *Revista de Biologia e Ciências da Terra*, **6 (1)**: 152-164.
- Linhares, A. X.1981.** Synanthropy of Calliphoridae and Sarcophagidae (Diptera) in the city of Campinas, São Paulo, Brazil. *Revista Brasileira de Entomologia*, **25(3)**:189-215.
- Marinho, C. R.; Barbosa, L. S., Azevedo, A. C. G., Queiroz, M.M.C., Valgode, M. A., Aguiar-Coelho, V. M., 2006.** Diversity of Calliphoridae (Diptera) in Brazil's Tinguá Biological Reserve. *Brazilian Journal of Biology*, **66(1A)**: 95-100.
- Mello, R. S.; Queiroz, M. M. C.; Valgode, M. A.; Aguiar-Coelho, V. M. 2006.** Population fluctuations of Calliphoridae flies (Diptera: Calliphoridae) in the biological reserve of Tinguá, RJ, Brazil. Submetido para Iheringia.
- Mello, R. P.2003.** Chave para a identificação das formas adultas das espécies da família Calliphoridae (Diptera, Brachycera, Cyclorrhapha) encontradas no Brasil. *Entomologia y Vectores*, Rio de Janeiro, **10(2)**:255-268.
- Neto, S. S.; Monteiro, R. C.; Zucchi, R. A.; Moraes, R. C. B. 1995.** Uso da análise faunística de insetos na avaliação do impacto ambiental. *Scientia Agricola*, São Paulo, **52(1)**: 9-15.
- Paraluppi, N.D.; Castellon, E. G.1994.** Calliphoridae (Diptera) em Manaus: I. Levantamento taxonômico e sazonalidade. *Revista Brasileira de Entomologia*, Paraná, **38**:661-668.

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