

SUMMARY OF RESULTS TO DATE AND PERSPECTIVES

The project is dealing with a collection with over 200,000 specimens belonging to more than 60 families of Diptera. The groups that have been reared below the family level resulted in the identification of species of almost 200 genera. The genera worked out resulted in the identification of almost 400 species, of which about 200 are new. The number of actual new species, however, will be far greater than this, since many families have still not been identified at the species level. General numbers, hence, point that the size of the overall Diptera diversity in the entire Neotropical region may be five times the number of species now identified in the group, of about 31,000 species. Being the most important study on Diptera diversity in the Atlantic Forest ever, the large sample along the study area covered in the project resulted in the correction of the number of areas of endemism identified for diptera groups: the seven areas proposed before were reduced to four main areas – even though subdivisions at the population level may exist. Also, the distribution of the species of many groups showed to be much more dynamic than expected, with at least marginal overlap in the distribution of species in different areas. The overlap in the Atlantic Forest, between species belonging to taxa of tropical distribution and taxa also present in Chile, Australia, and New Zealand showed the co-existence of species belonging to different temporal “layers” in the same areas. The secondary occupation of tropical terrains by species originated in temperate areas implicates in a modified understanding of the evolution of the Atlantic Forest and in new recommendation to the construction of analytical methods of biogeography. Possibly the cycles of glaciations and interglaciation occurring in South America, since the late Cenozoic, have been much more responsible for the alteration of the limits of species distribution than for speciation processes.

Very few biogeographical studies have been made with the amount of detailed original data on species distribution in the Atlantic Forest used in this project. The results generated allowed modifying different aspects of numerical methods of biogeography analyses. This includes the use of information on marginal overlap between species distribution, the subdivision of grids with geographical coordinates based on topographical accidents, the identification and separate use of allochronic taxa in biogeographic matrices, and the establishment of adequate protocols for different steps of the biogeographical study. The results of the project allow that new studies address biogeographic problems for which there is insufficient knowledge on its dipteran composition and connections. Certain areas with rather isolated spots of Atlantic Forest in eastern Mato Grosso do Sul, Goiás, central and west Bahia and Minas Gerais, and the state of Ceará have been so scarcely studied that cannot, with the information at hands, be included in general maps of species distribution. New studies can address precisely these areas, resulting in precious information for conservation purposes.

MAIN PUBLICATIONS

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