

## DIPTEROUS GUILDS OF SMALL-SIZED FEEDING SOURCES IN FORESTS OF HUNGARY

L. PAPP

*Department of Zoology, Hungarian Natural History Museum  
H-1431 Budapest, Pf. 137, Hungary, E-mail: lpapp@zoo.zoo.nhmus.hu*

Insect guilds (of Diptera and Coleoptera) on "very small-sized feeding sources" (droppings of forest animals, dead snails, tinder fungi, decaying fungi, sap of deciduous woods, *Vespa* nests, etc.) in low mountain forests in Hungary were studied from 1995 to 1998 (504 positive samples for flies, more than 20500 dipterous individuals). A small but significant fraction (about 20%) of these sources is not exploited by flies at all. The high species diversity of those that are colonized represents a majority of forest Diptera diversity in Hungary (with numerous species and genera new to Hungary and even new to science). The quality, size, persistency and place of renewal of the sources, the potential size of each dipterous population, the flies' ability to find new sources and composition of the local fauna are all important factors in determining the actual frequencies of species found on extant sources.

Although the primary texture of the forest community structure is formed by the more abundant forest species populations, those species in guilds on small-sized food sources put a colourful pattern on that texture. They are mostly rare and are probably insignificant for the main energy flow processes, but knowledge of their presence and life histories would seem to be indispensable for a complete understanding of ecosystem structures and diversity maintenance. Biomonitoring of these species, however, is a challenge because of their poorly understood ecology and fluctuating abundance. The relationships of rarity and the species colonizing these sources are discussed and the development of raritology (study of rare species) as an individual branch of ecology is predicted.

**Key words:** small-sized feeding sources, Diptera, species composition, diversity, raritology, Hungary

### INTRODUCTION

The insect guilds found in small-sized food sources have attracted very little attention in ecology, particularly so for those sources consisting of dead organic matter. In ecology textbooks, even in the best ones, only a small portion is devoted to animals developing in droppings, carrion, etc. (cf. KREBS 1985, PRICE 1984, THOMPSON 1984). Even SZELÉNYI (1953) left them out of consideration. The most comprehensive analysis was found in BALOGH's (1953) book which, although qualitative, summarised the important literature of the time and assigned these guilds their proper importance by including them as a category in forest ecosystems. (Note that I use the term "guilds" in the sense of HAWKINS and MACMAHON (1989) rather than in its original meaning (ROOT 1967)).