



Report on the Pipunculidae (Diptera) fauna of the Monegros area

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Pipunculidae are small inconspicuous flies, usually with black body colour, and measuring between 3 and 12mm. They are closely related to hoverflies (Syrphidae), from which they can be differentiated by the large compound eyes, occupying most of the hemispherical head and by differences in the wing venation (see De Meyer, 1989). During their larval stage they are parasitoids of Auchenorrhyncha (Homoptera). They can often be found hovering among the vegetation, where females search for suitable hosts to deposit their eggs in. Worldwide, about 1200 species are known (De Meyer, 1996) while the European fauna consists of over 150 described species.

The pipunculid fauna of Europe is fairly well known, mainly through revisions of several genera during the last 10 years (Albrecht, 1990; De Meyer, 1989; Jervis, 1992). In most cases the Mediterranean fauna was always under-represented in these studies (De Meyer, 1992). Mainly because the amount of material available for this region seems to be limited, but also because of the lack of regional taxonomists specialised in this group.

Through the endeavours of Mr Javier Blasco-Zumeta and his study of the insect communities in a steppe habitat on gypsum grey soils in 'La Retuerta de Pina', of the Monegros region (Ribera & Blasco-Zumeta, 1998), an important collection of Pipunculidae was obtained. This collection was kindly put at the disposition of the author and was partly the subject of a faunistic study of the Spanish fauna (De Meyer, 1997).

One of the results of this study is that it has shown the richness and uniqueness of the ecosystem represented in the Monegros, at least as far as the pipunculid fauna is concerned. In this respect the fauna is very peculiar, not only within the Spanish political boundaries but also in a wider perspective with regard to circum-Mediterranean distribution.

This richness can be best outlined when the species diversity is compared with that of an equally intensively sampled area in Spain which also formed part of the above mentioned study on the Spanish fauna: material collected by Dr Wahis between 1989 and 1990 at Moraira, province of Alicante by means of a Malaise trap, placed in a garrigue with a vegetation dominated by *Rosmarinus officinalis* and *Pinus halepensis*. When the species composition of both localities is compared the following differences are of importance:

1 Both sampling areas show a large diversity of species, although the Monegros fauna is distinctly richer (22

species out of 46 species known from Spain) than that of Moraira (16 species).

- 2 The fauna of Moraira shows a much greater affinity with the pipunculid fauna found in the Atlantic and Continental regions (7 out of 9 species that are not new also occur in the latter regions) than the fauna of the Monegros (5 out of 12 species (not 4 out of 11 as indicated in De Meyer, 1997)). This affinity with Atlantic and Continental regions is mainly because of the presence of common species, widespread throughout Europe. The fact that this is less in Monegros, show the higher 'specialised' or unique fauna compared of the former to the more 'generalised' fauna of Moraira.
- 3 For those species found in Monegros, a high number of them show a disjunct distribution between the West and East Mediterranean subregions or vicariant species with some found in the East subregion (8 out of 17 species) or even as far as the Turanian region. This aspect is explained in detail in Ribera & Blasco-Zumeta, 1998).
- 4 Four species new to science and described by De Meyer (1997), from material originating from the Monegros area, are so far only known from this locality. Two of these are unique in the sense that they do not seem to be related to any other European species. In comparison, none of the species new to science described in part of material collected at Moraira is endemic.

Although these preliminary results should be treated with caution (the Mediterranean fauna in general and the Spanish fauna in particular is still largely unknown and general circum-Mediterranean distribution patterns for most Pipunculidae species are largely unresolved), they do show some distinct tendencies that outline the importance of the Monegros insect fauna, and of the Pipunculidae in particular. The Monegros fauna is very rich despite the extreme ecological conditions, shows a number of so far presumed endemic species, and largely consists of a relict fauna that shows disjunct distributions throughout the Mediterranean basin.

Because of this uniqueness, the region of the Monegros and of the different habitats represented in this ecosystem should be considered as a priority area for protection in Spain

and in the West Mediterranean region in general. Research should be further developed in this area, in order to explain the underlying relationships between insect and plant communities. Pipunculidae form an interesting group, in the sense that they are parasitoids of Homopterans. They do show some host specificity although this is not intensively studied. Homoptera in turn will have a certain affinity and relationship

with plants which might be typical for the habitats represented in the Monegros region. Therefore multidisciplinary research in this field would greatly enhance the knowledge of the particular inter-relationships at this region and probably will emphasise even more the importance for a sustainable conservation of the Monegros.

References

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Reseda lutea L. ssp. *vivanii* (P. Monts.) A. Rovira.
A: Inflorescencia. B: Fruto. C: Flor. D: Hoja. (Dib. O. Escudero)