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Fungus Gnats (Diptera, Bolitophilidae, Keroplatidae and Mycetophilidae) of the Monegros

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The fungus gnats in the broad sense are represented in Europe by five families of Sciaroidea, three of which are known to be present in the Monegros. The other two families Diadocidiidae and Ditomyiidae are small and only one species of each family is known from Spain. Material from the Monegros has not yet been published, but 47 species have been examined (1 Bolitophilidae, 4 Keroplatidae and 42 Mycetophilidae) and full details of these will be given in a paper under preparation.

This group is mainly found in forests and wooded habitats, especially older well established forests with mature and decaying trees, a good amount of dead wood and a rich fungus flora since most species develop in fungi or decaying wood. More humid forests are particularly favoured and adults are usually most numerous near streams and in other sheltered situations. Montane habitats are favoured and in Europe the greatest number of species are found in boreal or alpine forests. Fewer species are therefore expected in warmer, drier and more open habitats such as those found in the Monegros.

Many species are, however, very widespread, occurring in suitable habitats throughout Europe. The fauna of the Mediterranean region is smaller than that of northern Europe and consists predominantly of these widespread species, but also includes a moderately large number of species found only in this region. Some of the latter are found throughout the region, while others are more localised. In several genera speciation has evidently occurred within the region and in some of these cases this speciation has only recently been recognised and the distribution of the species in these groups is poorly known. Some of the species found in the Monegros belong to each of these categories and some of the new species found there may also have this distribution. Others may be more restricted but this will not be known until surrounding regions are better studied.

The Bolitophilidae includes only one genus *Bolitophila* Meigen, with 33 species in Europe of which five have previously been recorded in Spain. The one record from the Monegros was *B. pseudohybrida*, a widespread European species but the first record for Spain. It develops in terrestrial gill fungi, usually in wooded areas.

The Keroplatidae includes 84 described species in Europe, of which 55 are recorded in France, 52 in the British Isles and 45 in Switzerland. The Spanish fauna is less well known. Strobl (1900, 1905, 1909) recorded eight species, some of which require confirmation and a further five were added by Plassmann & Schacht (1990). Specimens of eleven species from other parts of Spain have been examined by the author and these include eight additions to the published records. Most of the 21 species recorded from Spain are widespread in Europe but the Monegros fauna of the family is by comparison more interesting; only four species have been recorded but three are new to Spain, two of them new to science. Many Keroplatidae have carnivorous larvae living in webs on various substrates such as dead wood or lignicolous fungi, but the biology of the Monegros species is unknown.

Macrocera pusilla Meigen, with one record from Monegros, is a widespread species but new to Spain. The genus *Macrorrhyncha*, which feed at flowers, is a mainly Mediterranean group and is represented by two species: *M. hispanica* (Strobl) was only previously known from the holotype male from Alicante, which was redescribed by Matile (1975) and an undescribed *Macrorrhyncha* species, also known from southern France and Corsica, is also present. The fourth keroplatid is an undescribed *Pyratula* species of the *perpusilla* Edwards group. This is a group with several species in the Mediterranean region, all till recently undescribed. Two of them have already been described, from Israel (Chandler, 1994) and the Canary Islands (Chandler & Ribeiro, 1995); others occur in Greece and Switzerland. The species found in the Monegros is undescribed, but has been found in Malta so probably also occurs in North Africa.

The Mycetophilidae are a much larger group, with at least 820 species described from Europe. Recent lists have recorded 452 species for the British Isles and 440 for Switzerland; the latest unpublished French list (Matile, pers. comm.) includes 380 confirmed species. The Spanish fauna was until recently poorly known. The above mentioned papers by Strobl recorded about 50 species, many of which require confirmation. There were only scattered records in the literature, adding about 20 species prior to the list by Plassmann & Schacht (1990), who recorded 99 species (about 75 of them newly recorded) and listed records from many parts of Spain. Material examined by the author (mainly from visits in 1978 and 1980) from Spain other than the Monegros includes 110 species, of which about 45 have not previously been recorded, so the total of species known from Spain prior to study of the Monegros fauna was approaching 200.

From the Monegros, 42 species in 18 genera of Mycetophilidae have been examined. Most of these species develop in terrestrial fungi, a biology likely to be most common for

the family in this type of habitat. This applies to the species of ten of the genera recorded, comprising 28 species and *D. gilvipes* (Haliday) in *Docosia*. The biology of other species of *Docosia* and of the species of three other genera (*Azana*, *Zygomyia* and *Novakia*) is unknown as is that of the single *Boletina* species recorded; other *Boletina* species have been recorded from terrestrial fungi or bryophytes. *Platurocypta punctum* (Stannius) develops in myxomycetes, usually growing on wood. The genera *Trichonta* (1 species in Monegros) and *Mycomya* (3 species) mainly develop in wood encrusting fungi and may be associated with such fungi on *Juniperus thurifera*. Not surprisingly species and genera normally associated with decaying wood or lignicolous fungi are otherwise absent from the Monegros.

The largest category of Mycetophilidae found in the Monegros are widespread European species (28 species). Two other little known species may be in this category, i.e. *Novakia simillima* Strobl, only previously known from Austria and a *Docosia*, which may be the previously unknown male of *D. morionella* Mik, of which females have been recorded only from Austria and Scotland.

Six species recorded from the Monegros are known in Europe only from the Mediterranean region, i.e. *Azana flavohalterata* Strobl, *Mycomya pygmalion* Väisänen, *Rymosia pseudocretensis* Burghele-Balacesco, *R. beaucournui* Matile, *Exechia fulva* Santos Abreu and *Cordyla styliforceps* Strobl. Three of these, the *Mycomya* and *Rymosia* species, are new records for Spain, although all have been recorded from Portugal by Ribeiro (1990, 1991). All of these six are widespread around the Mediterranean and all were recorded from Israel by Chandler (1994); the two latter are also known from the Canary Islands (Chandler & Ribeiro, 1995).

The remaining six species are undescribed. A *Pseudexechia* species and a *Cordyla* species are represented by single males and little can be said about their likely status. A *Docosia* species, which is common in the area, is close to *D. helveola* Chandler from Israel and to some northern European species. The two *Sciophila* species belong to groups including a number of closely allied species; one of them is close to the widespread European species *S. hirta* Meigen, while the other belongs to the *lutea* Macquart group, of which several closely related species are now known to occur around the Mediterranean region. The latter species has also been examined from the Sierra de Cazorla in southern Spain and is closely allied to or possibly conspecific with another undescribed species found in Algeria and Malta.

Perhaps most interesting is a new *Boletina* species, the only member of this large genus to be found in the Monegros. This is unique in the genus in having the wings with thickened veins, which may be an adaptation to living in arid habitats. Its male genitalia indicate relationship with the common European species *B. trivittata* Meigen and a few other lesser known species from northern Europe.

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