

## Some Simuliidae (Diptera) from Southern Spain.

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In March, April and May 1966 an expedition from the Zoological Museums in Copenhagen and Helsinki visited Southern Spain, where the members brought together a collection of, among other things, black flies. This was later completed with Dr. J. R. Vockeroth's material of Simuliidae, collected in July 1960 in the same area. Some of this 1960 material was identified by Dr. Vockeroth. This is indicated by (V) below. During the years some records of Simuliidae from Spain have been published, viz., Grenier & Bertrand, 1954 (15 species mentioned), and Doby, David & Raul, 1964. More thorough investigations on black flies in Spain will probably at least double the number of species mentioned by Grenier & Bertrand. In the present material there are at least twelve species represented. Three of these are probably new to science and an additional two are new to Spain.

I am indebted to Mr. Leif Lyneborg for his permission to work up this material and to Dr. Vockeroth for allowing me to examine his collection of black flies.

### **Prosimulium inflatum** Davies, 1957

Material. — GRANADA: Rio Lanjaron 9 km NW Orgiva, 1600 m, 1 ♂, 7 May 1966.

Distribution. — Europe, especially Britain, Scandinavia and USSR (Komi ASSR). New to Spain.

Remarks. — The species-complex *P. hirtipes* has previously been divided into some new species of which *P. inflatum* is considered to be closely allied to the true *P. hirtipes* Fries, 1824.

### **Prosimulium rufipes** Meigen, 1830

Material. — GRANADA: N. slope Veleta, Sierra Nevada, 2200—2400 m, 8 ♂ 4 ♀, 30 July 1960 (J. R. Vockeroth).

Distribution. — Middle and southern Europe. New to Spain.

Remarks. — Very similar to *P. hirtipes* and often mistaken for this species. For descriptions and differences see Davies (1957), Rubtzov (1964) and Knoz (1965).

### **Cnephia** sp.

Material. — ALMERIA: Rioja 10 km N, 200—500 m, 1 ♀, 12 March 1966.

Remarks. — This *Cnephia* female is closely related to *C. tredecimata* Edwards, but seems to represent an undescribed species. However, in the genus *Cnephia* it is impossible to make a description on basis of a single female. The females are too alike and the variation within one and the same species is considerable.

### **Eusimulium latipes** Meigen, 1804

Material. — GRANADA: N. slope Veleta, Sierra Nevada, 2400 m, 17 p 95 l, 25—30 July 1960 (J. R. Vockeroth).

Distribution. — Holarctic.

Remarks. — A species with a broad ecological range and probably three generations a year. The examined larvae differ from typical *E. latipes* in having more indistinct head markings and more expressed lateral and median teeth on the hypostomium. Number of primary rays of cephalic fan 33—45 against usually 40—50.

### **Wilhelmia mediterranea** Puri, 1925

Material. — GRANADA: Barranco de Miranda 8 km SW Orgiva, 300 m, 10 ♀, 16—23 April 1966; Rio Guadalfeo, Orgiva, 300 m, 8 ♀, 3 April — 3 May 1966; Sierra de Contraviesa 5 km SE Orgiva, 500 m, 2 ♀, 18 April 1966; Rio Lanjaron near Lanjaron, 600 m, 1 ♀, 26 April 1966; Almunecar, 0—30 m, 50 ♂ 32 ♀ 19 p 12 l, 16—19 July 1960.

Distribution. — Mediterranean region.

Remarks. — This species shows a large degree of variability in most characters at all stages. This is also the case with the present material, especially in regard to the length, which varies between 2.6 and 3.7 mm. The hairs covering the abdomen are usually dense, but in some of the above recorded specimens they are sparse. The colour of the abdominal hairs varies from light golden (most common) to silvery.

**Wilhelmia salopiensis** Edwards, 1927

Material. — ALMERIA: Alhama 5 km W, 200—500 m, 2 ♀, 28 March 1966. — GRANADA: Rio Guadalfeo, Orgiva, 300 m, 1 ♂ 6 ♀, 7—19 April 1966.

Distribution: Europe.

Remarks. — Originally described from England where it appears in July-August. The species is probably complex. However, the examined material shows little variability. Differences from *W. mediterranea*: smaller; stripes of female thorax without anterior lighter spots; male genitalia different.

**Schönbaueria** sp.

Material. — GRANADA: Rio Lanjaron near Lanjaron, 600 m, 1 ♂, 28 April 1966.

Remarks. — This male is a typical *Schönbaueria* species with exception of the parameral hooks: these are 5 on each side against the usual 2. In other respects the male is like *Schönbaueria pusilla* Fries, 1824.

**Odagmia ornata** Meigen, 1818

Material. — GRANADA: Torrenueva E Motril, 0—50 m, 1 ♂, 17 April 1966; Barranco de Algarrobo 12 km SW Orgiva, 300 m, 25 April 1966; Barranco de Miranda 8 km SW Orgiva, 300 m, 3 ♀, 16—23 April 1966; Rio Guadalfeo, Orgiva, 300 m, 3 ♀, 3—11 April 1966; Sierra de Contraviesa 5 km SE Orgiva, 500 m, 1 ♀, 18 April 1966; Sierra Nevada near Padul, 1300 m, 1 ♀, 1 May 1966; Rio Lanjaron 9 km NW Orgiva, 1600 m, 1 ♀, 15 April 1966; Granada, 700 m, 3 ♂ ♀, 10—14 July 1960 (J. R. Vockeroth); Iznalloz, 1 ♂, 9 July 1960 (J. R. Vockeroth); Sierra Nevada Highway, 1650 m, 2 ♂, 27 July 1960 (J. R. Vockeroth); N. slope Veleta, Sierra Nevada, 2300—2550 m, 1 ♂, 22 July 1960 (J. R. Vockeroth); Almuñecar, 0—30 m, 58 ♂ 37 ♀ 25 p 100 l, 16—17 July 1960 (J. R. Vockeroth).

Distribution. — Europe and possibly Siberia.

Remarks. — A widely distributed species which very often is mentioned in the literature. However, many of these records are wrong, and karyological investigations on what at the present is considered as *O. ornata* will probably divide the species into many sibilings.

**Odagmia monticola** Friedrichs, 1920

Material. — GRANADA: Rio Lanjaron 9 km NW Orgiva, 1600

m, 2 ♀, 13—15 April 1966; N. slope Veleta, Sierra Nevada, 2400 m, 24 I, 26—30 July 1960 (J. R. Vockeroth).

Distribution. — Europe.

Remarks. — A typical mountain species which in its early stages prefers fast running rills and smaller streams. The species has recently been divided into many subspecies, some of which may be of specific value. The two recorded females agree in most "stable" characters with the true *O. monticola* (see Carlsson, 1963).

#### ***Odagmia variegata* Meigen, 1818**

Material. — GRANADA: N. slope Veleta, Sierra Nevada, 2200—2400 m, 3 ♂ 3 ♀, 25—30 July 1960 (V), (J. R. Vockeroth); Granada, 700 m, 26 I, 13 July 1960 (J. R. Vockeroth).

Distribution. — Europe with the exception of the northern parts.

#### ***Odagmia* sp.**

Material. — GRANADA: Barranco de Algarrobo 12 km SW Orgiva, 300 m, 1 ♀, 25 April 1966; Rio Guadalfeo, Orgiva, 300 m, 2 ♀, 3 & 18 April 1966; Sierra de Contraviesa 5 km SE Orgiva, 500 m, 1 ♀, 18 April 1966.

Remarks. — The four females recorded above belong to the genus *Odagmia* but have different thoracic markings compared with the *ornata*- and *monticola*-groups. They are generally duller and with three distinct stripes on the mesonotum. Of hitherto described *Odagmia* species they show some relationship with the *O. bimaculata*-group of Rubtsov (1964).

#### ***Tetisimulium bezzii* Corti, 1916**

Material. — GRANADA: Barranco de Miranda 8 km SW Orgiva, 300 m, 1 ♂, 20 April 1966; Granada, 700 m, 1 ♀, 14 July 1960 (V), (J. R. Vockeroth).

Distribution. — Mediterranean subregion.

Remarks. — The collected male is undoubtedly *T. bezzii*. However, according to Grenier & Bertrand (1954) and Rubtsov (1964), the normal flying period for this species should be August.

The collection also contains further two males which have lost necessary parts for species-classification. One of the specimens seems to belong to the genus *Obuchovia* Rubtsov, 1956, the other is probably a *Simulium* (s. str.) species.

### Summary

The study of the present small material of Simuliidae from Southern Spain seems to indicate that the black flies of Spain are still very poorly known. Twelve species are recorded. Three species (of the genera *Cnephia*, *Schönbaueria*, and *Odagmia*) are probably new to science, but will not be described due to lack of sufficient material. Two species of *Prosimulium* are new to Spain.

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