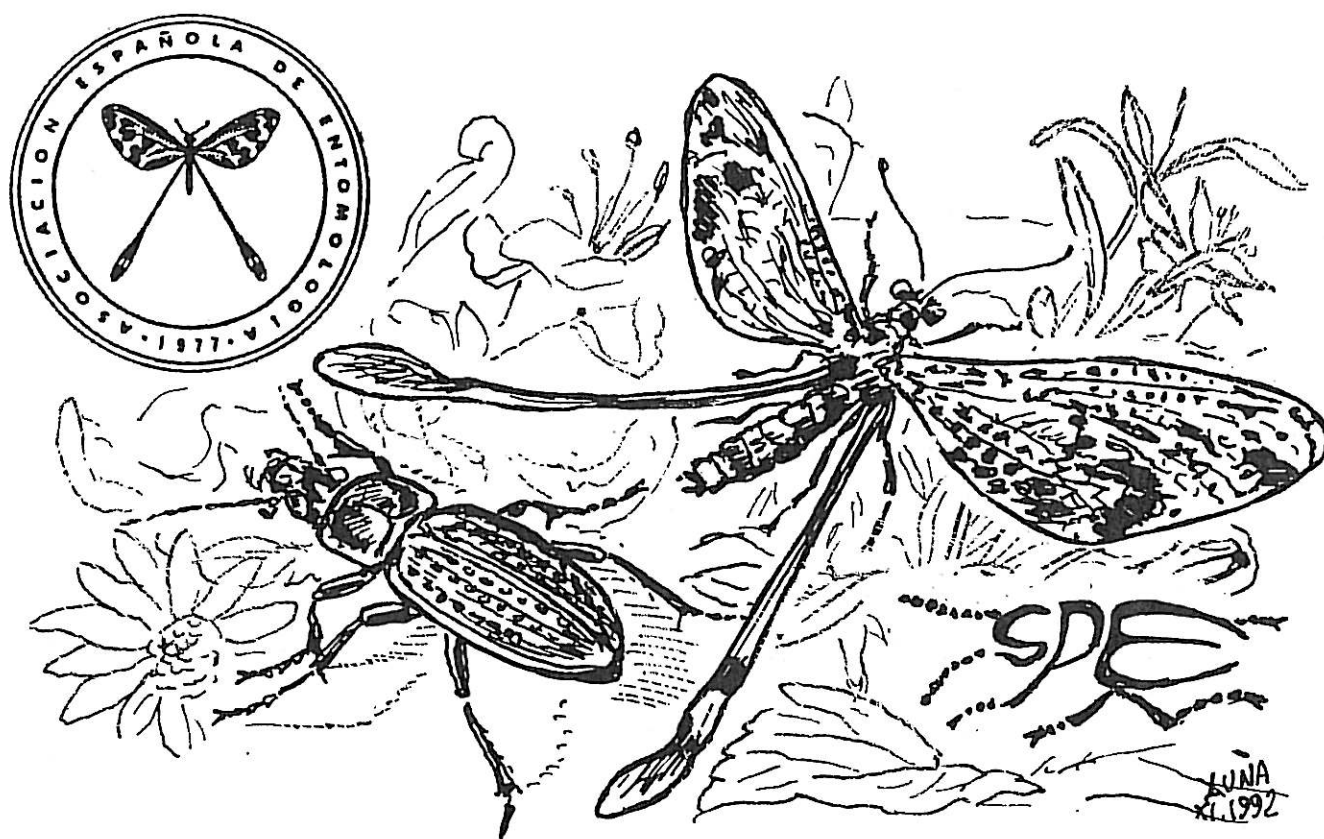


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PHILAENUS SPUMARIUS (LINNAEUS, 1758) NEW TO THE AZORES
(HOMOPTERA, AUCHENORRHYNCHA, CERCOPIDAE)

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ABSTRACT - The meadow spittlebug, Philaenus spumarius, a well known highly polymorphic cercopid for colour pattern, is here recorded for the first time from the Azores, having been found so far in S. Miguel. Only the morphs typicus (TYP), populi (POP), and leucophthalmus (LOP), on males, and typicus (TYP) and populi (POP), on females, were found. Moreover, in the structure of the aedeagus the specimens conform well with material from northern continental Portugal, where the ecological conditions are close to those of the Azores.

RESUMO - Philaenus spumarius (Linnaeus, 1758) (Homoptera, Auchenorrhyncha, Cercopidae), uma novidade faunística para os Açores - A cigarrinha espumosa (Philaenus spumarius), um cercopídeo notável pelo seu elevado grau de polimorfismo cromático, é dada pela primeira vez para os Açores, tendo sido encontrada em S. Miguel. Nos machos foram encontradas as seguintes formas: typicus (TYP), populi (POP) e leucophthalmus (LOP); quanto às fêmeas, apenas foram encontradas as formas typicus (TYP) e populi (POP). No que respeita ao eedeago, o material aqui estudado aproxima-se bastante dos exemplares encontrados no norte de Portugal, onde as condições ecológicas mais se aproximam das dos Açores.

The meadow spittlebug, Philaenus spumarius, has a wide range of distribution which includes Europe, parts of Asia, North America, New Zealand and Hawaii (LEES & STEWART, 1987). The species is highly interesting since throughout its geographical range populations are strikingly polymorphic for colour pattern, there being 11 commonly occurring morphs in north-western Europe: populi (POP), typicus (TYP), trilineatus (TRI), marginellus (MAR), lateralis (LAT), flavicollis (FLA), gibbus (GIB), leucocephalus (LCE), quadrinaculatus (QUA), albomaculatus (ALB), and leucophthalmus (LOP) (HALKKA, 1988). These distinct colour patterns are the result from the 28 possible genotypes of seven alleles at a single genetic locus (HALKKA et al. 1973, 1975).

The species is widely distributed in continental Portugal and since it was not recorded from the Azores by LINDBERG (1960), it is suggested that Philaenus spumarius is a recent immigrant in S. Miguel, the only island of the Azores where this cercopid has been found so far.

Philaenus spumarius (Linnaeus, 1758), Figs. 1-6.

- Cicada spumaria Linnaeus, 1758
- Cicada leucophthalma Linnaeus, 1758
- Cicada lateralis Linnaeus, 1758
- Cicada leucocephala Linnaeus, 1758
- Cicada spumaria graminis De Geer, 1773
- Cercopis gibba Fabricius, 1775
- Cicada albomaculata Schrank, 1776
- Cicada quadrinaculata Schrank, 1776
- Cicada trilineata Schrank, 1776

- Cercopis fasciata Fabricius, 1787
- Cercopis marginella Fabricius, 1794
- Cercopis praeusta Fabricius, 1794
- Cercopis vittata Fabricius, 1794
- Cercopis xanthocephala Schrank, 1801
- Cicada oenotherae Scopoli, 1763
- Cercopis spumaria ustulata Fallén, 1826
- Cercopis spumaria pallida Zetterstedt, 1828
- Philaenus leucophthalmus var. populellus Metcalf, 1962

Highly variable in colour as referred to before. The pattern varies from uniformly yellowish-white to uniform dark brown, with several intermediate forms, many of which were originally described as distinct species.

Of a total of 20 specimens, 12 were found in mountain areas with laurel and heath woodlands. These include the following morphs: populi (POP), one male and two females; typicus (TYP), three males and five females; and leucophthalmus (LOP), one male. The remaining eight specimens were found in lowland grasslands and all belong to the typicus (TYP) pattern: six males and two females.

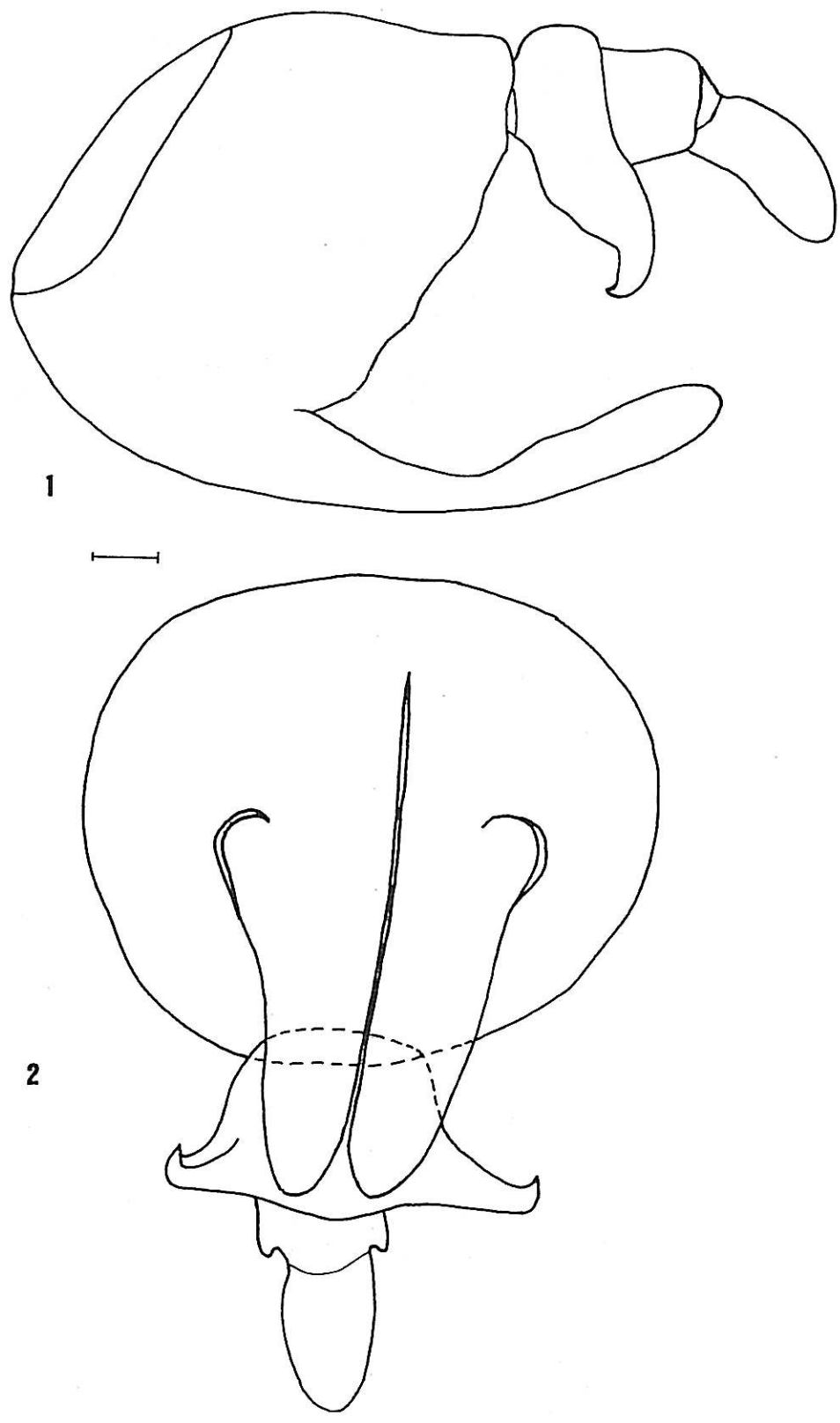
Male pygofer as in Figs. 1-2. Aedeagus as in Figs. 3-5, genital style as in Fig. 6. According to WAGNER (1955), there exists a clinal variation in the shape of the appendages of the aedeagus, these decreasing in length with increasing latitude which was also observed in continental Portugal (QUARTAU & BORGES, in preparation). In the structure of the aedeagus the material from the Azores conforms well with specimens from northern Portugal, where ecological conditions most closely resemble those present in the Azores.

Overall length of males 5.68 - 6.20 mm (mean 5.96 mm), of females 6.08 - 6.64 mm (mean 6.40 mm).

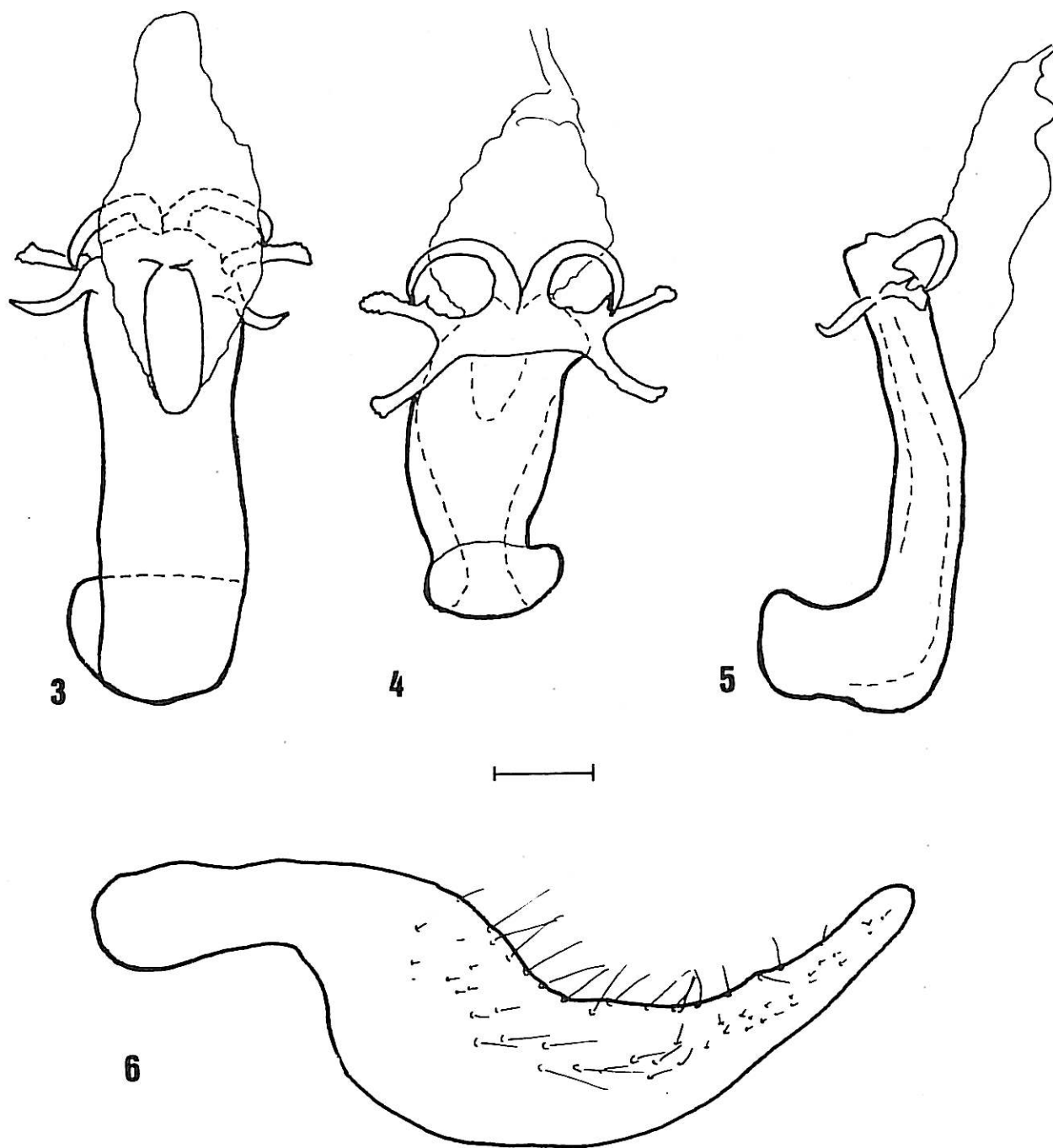
Material studied. S. Miguel: Fajã de Cima - Carreira de Tiro, 14.7.79 (col. B. Sousa), 6 ♂♂, 2 ♀♀; Salto do Cavalo, 5.8.79 (col. B. Sousa), 2 ♂♂, 3 ♀♀; Lagoa do Fogo, 7.10.79 (col. J. A. Quartau), 2 ♂♂, 1 ♀; Pico da Barrosa, 12.8.79 (col. B. Sousa), 1 ♀; Miradouro da Tronqueira, 6.8.89 (col. T. Braga), 1 ♂; Sto. António (Nordeste), 10.8.89 (col. F. Pereira), 2 ♀♀.

In spite of the small number of specimens collected, it is interesting to note that in S. Miguel, similarly to New Zealand, where the species is also a recent immigrant, only the morphs typicus (TYP), populi (POP), and leucophthalmus (LOP) have been found (THOMPSON, 1984). The presence of a male with the last pattern, a melanic form extremely rare in continental Portugal, might well be the result of genetic drift. The morph typicus (TYP), the best generalist and colonist form according to HALKKA (1988), is also the most frequent morph in the Azores.

Since adults of the meadow spittlebug are not strong fliers, its presence in the Azores was very unlikely due to direct and sustained flight from western Europe. More probably the species has been accidentally introduced by man, for instance with consignments of vegetables as it probably also occurred in Madeira with another cercopid species, Neophilaenus angustipennis (QUARTAU & ANDRÉ, 1988).



Figs. 1-2. Philaenus spumarius (Linnaeus) - 1 male pygofer, left lateral view; 2: male pygofer, ventral view. Scale: 0.1 mm.



Figs. 3-6. *Philaenus spumarius* (Linnaeus) - 3: aedeagus, posterior view; 4: aedeagus, anterior view; 5: aedeagus, left lateral view; 6: left genital style. Scale: 0.1 mm.

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