**Eupteryx cytinsularis**, a new species of the melissae group (Rhynchota Auchenorrhyncha Cicadellidae) from Sicily, Sardinia and Corsica

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Abstract

Eupteryx cytinsularis sp. nov. (Rhynchota Auchenorrhyncha Cicadellidae Typhlocybinae), closely related to Eupteryx andalusiaca Ferrari and Eupteryx rostrata Ribaut, is described from Sicily, Sardinia and Corsica. Its position within the genus Eupteryx is discussed. In Sardinia the new species was collected on Cytisus villosus Pourret (Fabaceae).

Key words: Cicadomorpha, Typhlocybinae, distribution, Fabaceae, host plant.

Introduction

Eupteryx represents one of the largest genera of the subfamily Typhlocybinae. It is distributed in the Palearctic, Nearctic, Oriental and Ethiopian Regions (Dworakowska, 1979). In Europe are listed 50 species (Hoch, 2004), 27 are recorded from Italy (D’Urso, 1995).

Ribaut (1936) divided the genus in several species groups, some of which later were defined as separate genera. Based on characters of the wing veins, and the head and wing coloration he established the melissae group and included there nine species: Eupteryx andalusiaca Ferrari 1882, E. alticola Ribaut 1936 [= E. collina (Flor 1861)], E. decemnotata Rey 1891, E. collina (Flor 1861) (= E. florida Ribaut 1936), E. melissae Curtis 1837, E. rostrata Ribaut 1936, E. stachydearum (Hardy 1850), E. thoulessi Edwards 1926, E. zelleri (Kirchbaum 1868). Dworakowska (1979) added to the group further 15 species and described two new ones. The E. melissae group is particularly well represented in Europe, in the Near East, and also in West and Central Asia (Dworakowska, 1971).

In this paper we describe a new species of the melissae group, Eupteryx cytinsularis, recently discovered in Sicily, Sardinia and Corsica, and discuss its position within the genus Eupteryx.

Materials and methods

The specimens were collected applying entomological nets and aspirators and mounted on pinned carton. In order to study genital apparatus and apodemes, specimens were transferred for some hours in slightly moist conditions. The genital segment was detached and put in glycerine. Under binocular observation aedeagus and styles were separated from pygofer and genital plates and freed from muscles and connective tissue with the help of two entomological pins. In a similar way the apodemes were detached from the first abdominal segments.

**Eupteryx cytinsularis** sp. nov.

Description

Coloration

Males (figures 1A, 1B, 1D, 1F, 1G): Tempora white, above base of antennae with narrow line-shaped spot, sometimes indistinct, sometimes broadened in its upper part. Vertex (figures 1A, 1B) light yellow with two pairs of angular black spots, one of them on hind margin with spots confluent or at least very close together, the other one in anterior region with spots triangular, distinctly more distant from each other. Spots on each side normally fused to each other forming irregularly shaped, on midlength narrowed, anteriorly diverging broad bands. Frontoclypeus (figure 1D) yellow, sometimes with light brown transverse markings on sides of midline, near its upper margin with two small rounded or triangular spots, sometimes with connection to dark markings of vertex. Anteclypeus white, in dark specimens more or less brown. Triangular portion of genae near clypeal suture dark brown, other parts white. Pronotum (figures 1A, 1B) dark, somewhat lightened towards its posterior part, with posterior angles, narrow spot in the middle of fore margin, two rounded spots on each side of central part and two small rectangular spots near anterior angles whitish yellow. In some cases dark areas more reduced, light areas more extended. Scutellum (figures 1A, 1B) with pair of black tongue shaped markings, lateral borders, central area and posterior tip yellow. Fore wings (figure 1G) with apical veins all emanating from radial cell and black spot distally of wax area more or less completely covering portion of radius crossing this spot. Underside of thorax black, with mesepisterna and mesepimeron yellow. Abdomen black with margins of each segment yellow. Genital valve and pygofer black, anal tube dark brown, genital plates basally black, apically whitish yellow. Fore and middle legs yellow with ventral margin of femora and tibiae and third tarsomere fuscous. Hind legs (figure 1F) yellow with coxae, apex of tibiae, apical half of first tarsomere and complete third tarsomere black, area on the ventral margin of femora near their apex fuscous.
Females (figures 1C, 1E): As in males with following differences: Linear markings of tempora more distinct, broader; frontoclypeus in its lateral and apical part always dark, anteclypeus always black; black spot distally of wax area of fore wings not covering part of radius crossing this spot; black coloration of hind tibia and tarsus missing or at least less distinct, with apex of tibia, apex of first tarsomere and third tarsomere more or less fuscous. Pregenital segment basally black, apically whitish; pygofer black with yellow ventral margins.

**Male genital apparatus**

Styli as figure 2C, processus of pygofer as figure 2D, aedeagus in ventral view (figure 2B) with triangular apex, apical appendages crossing over shaft, in lateral view (figure 2A) very stout, without dorsal thorn, appendages protruding distinctly ventrally of aedeagus shaft.

**Apodemes**

Apodemes of 2nd abdominal sternum (figure 2E) long, reaching 6th sternum.

**Measurements**

- **Males**: Body length: 2.8-3.1 mm (Holotype 3.1 mm); hind tibia: 1.32-1.42 mm (Holotype 1.36 mm); metatarsus: 0.73-0.81 mm (Holotype 0.78 mm).
- **Females**: Body length: 3.15-3.58 mm; hind tibia: 1.42-1.61 mm; metatarsus: 0.76-0.83 mm.

**Type series**

- **Holotype**

- **Paratypes**
  Same data as holotype; 9 males, 35 females. - Sardinia (Olbia-Tempio Province), Monte Limbara, road to the peak region ~ 900 m from fork with road SS 392 Tempio Pausania - Oschiri; ~ 900 m a.s.l.; 07.VI.2006
Figure 2. Eupteryx cytinsularis sp. nov., male, Sardinia, Monte Limbara (Paratype): Aedeagus, lateral view, from the right (A). Aedeagus, ventral view (B). Right genital style, dorsal view (C). Right pygofer lobe, from inside (D). 2nd - 6th abdominal sternum, dorsal view (E).

The species is known up to now from Monte Etna in Sicily, Monte Limbara in Sardinia and Bain de Guitera in Corsica.

Biology
The populations in Sardinia were found on small shrubs of Cytisus villosus Pourret (Fabaceae) in a dry Mediterranean forest at about 500 m (in April) and 900 m (in June) respectively, the specimens in Sicily were collected in open forests between 800 and 1650 m (in May and June), and the specimen from Corsica on a meadow with Olea europaea L. and Phillyrea sp. at 680 m (in April).

Derivatio nominis
The name of this species derives from the combination of the host plant genus in Sardinia, Cytisus, and its distribution on the islands Sicily, Sardinia and Corsica.
Discussion

E. cytinsularis sp. nov. doubtless belongs to the melissae group as defined by Ribaut (1936) on the base of the apical veins in fore wing all emanating from radial cell. In view of the simple apical aedeagus appendages, curved in basal direction and crossing ventrally of the aedeagus shaft (figures 2A, 2B), we consider the new taxon next related to E. rostrata Ribaut, E. melissae Curtis and E. andalusiaca Ferrari. All those species are present in Sicily, Sardinia and Corsica and are distributed prevalently in the west Mediterranean area, only E. melissae has a vast area around the whole Mediterranean region and in central and western Europe, in some regions probably introduced only by human impact.

Main differences to the above mentioned four Eupteryx species concern the markings of head, the coloration of pronotum, wings and legs and the shape of aedeagus.

E. cytinsularis shares most characters with E. andalusiaca: (1) the tendency to dark coloration of antennae and margins of frontoclypeus also in males, (2) the tendency to confluence of the dark spots of upper face and vertex, (3) the dark coloration of pronotum and scutellum, (4) quite extended dark areas of the fore wings, (5) the rather long hind tarsus, (6) the fuscous posteroapical region of femora, (7) the (in lateral view) stout aedeagus shaft without dorsal thorn and the (in ventral view) wide aedeagus apex. The two species differ, however, in (1) the extension of the dark coloration of the legs (almost lacking in E. andalusiaca, very distinct in E. cytinsularis), (2) the shape of the aedeagus apex (straightly cut in E. andalusiaca, tapered in E. cytinsularis), (3) the markings of upper face and vertex (the confluence of the dark spots creates in E. andalusiaca a characteristic pattern of narrow continuous lines, in E. cytinsularis wide, irregularly shaped bands, sometimes confluent, sometimes consisting of hardly separated spots, see figures 1A, 1B), (4) the coloration of fore wings (dark areas more extended in E. cytinsularis, see figure 1G) and (5) the aedeagus shape (shaft stouter in E. cytinsularis).

A close relationship also to E. rostrata is implied again by the stout aedeagus shaft, similar shape of apical aedeagus appendages and by the dark coloration pattern on the hind legs of the male (somewhat more extended in E. cytinsularis, see figure 1F). Contrary to E. cytinsularis, however, E. rostrata has an aedeagus with robust dorsal process and displays a light coloration of head, pronotum and wings similar to that of E. melissae.

In all the mentioned characters E. melissae presents the most distinct differences (light coloration of head, wings, legs, isolated head spots, slender aedeagus shaft, narrow aedeagus apex etc.) and may therefore, within this group of species, represent the taxon less close related to E. cytinsularis.

As most Eupteryx species feed on Lamiaceae, some taxa also on Asteraceae, Polygonaceae, Apiaceae, Urticaceae etc. (Dworakowska, 1970; 1971; 1972; 1979; Stewart, 1988; Nickel, 2003), the relationship between E. cytinsularis and a Fabaceae species as host plant is an interesting exception. Whereas E. melissae feeds on several Lamiaceae species, E. rostrata uses besides Lamiaceae often also Asteraceae (for instance Pulicaria dysenterica (L.) Bernh., see Guglielmino et al., 2005) and E. andalusiaca is monophagous on Dittrichia viscosa (L.) Greuter (Asteraceae).

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