

***Eupteryx montezuma*, a new species of the *melissae* group
from Calabria and Sicily
(Rhynchota, Auchenorrhyncha, Cicadellidae)**

Adalgisa Guglielmino, Vera D'Urso, Christoph Bückle¹

Summary: *Eupteryx montezuma* sp. nov., (Rhynchota, Auchenorrhyncha, Cicadellidae, Typhlocybinae), closely related to *E. andalusiaca* Ferrari, 1882, *E. cytinsularis* Guglielmino, Lauterer & Bückle, 2011, and *E. melissae* Curtis, 1837, is described from Calabria and Sicily. Its position within the genus *Eupteryx* Curtis, 1833 is discussed.

Keywords: Cicadomorpha, Typhlocybinae

1. Introduction

The genus *Eupteryx* was established by Curtis (1833) for *Cicada picta* Fabricius, 1794 (= *Cicada atropunctata* Goeze, 1778). With about 120 species described, it is one of the largest genera within the tribe Typhlocybini and is of Palearctic, Nearctic, Oriental and Afrotropical distribution. For Italy, D'Urso (1995) listed 27 species, nine more were recorded since then (Gebicki & Bednarczyk 2003; Guglielmino et al. 2005; Carl 2007; Guglielmino et al. 2011; Poggi 2012; Guglielmino et al. 2014).

Ribaut (1936) subdivided the genus in several species groups, among which the *melissae* group is one of the most important ones. In this group he placed nine species based on the head and wing coloration and the apical veins in the fore wing all emanating from the radial cell. Later, many other species were assigned to this species group (see for instance Dworakowska 1979), and nearly the half of the *Eupteryx* taxa known in Italy belong to it.

An additional species, *Eupteryx montezuma* sp. nov., is described in this paper, based on material collected in southern Continental Italy (Calabria) and Sicily.

2. Material and methods

The specimens were collected by means of sweeping net and aspirator, afterwards dried and conserved. For mounting and aedeagus dissection, the material was moistened again in a small box with moist paper. The genital segment was put in glycerine, the different elements of the male genitalia dissected with two entomological pins and later glued on the same label as the other parts of the insect. A similar procedure was applied for the abdomen and the preparation of the apodemes.

We examined specimens from the following collections:

- Private collection Guglielmino/Bückle (CGB).
- Private collection Vera D'Urso (CD).

In order to facilitate the comparison of data in different papers of two of the authors we maintained the number system of their collecting sites applied already in other publications (e. g. Guglielmino & Bückle 2015, Bückle & Guglielmino 2022).

¹ Corresponding author, e-mail: rosaurus@gmx.de

3. Results

Material examined

Eupteryx andalusiaca Ferrari, 1882

Italy: Latium (Roma): Monti della Tolfa, between La Farnesiana and Case Le Centocelle; ~ 150 m; 6/4/2002; Guglielmino & Bückle leg. (loc. 114); meadow; 2 males, 1 female. — Calabria (Reggio): SS 281 2 km west of Mammola; ~ 300 m; 17/08/2009; Guglielmino & Bückle leg. (loc. 501); open dry slope with *Inula viscosa*, *Arundo donax*, *Artemisia campestris*; 4 males, 9 females. — Sardinia (Oristano): ~ 3 km north of Cuglieri, ~ 320 m, 4/6/2006, Guglielmino & Bückle leg. (loc. 251), ruderal vegetation with fennel, *Artemisia*, Poaceae, *Rubus*, *Pyrus sylvaticus*, *Inula*; 2 males, 7 females. (CGB).

Eupteryx cytinsularis Guglielmino, Lauterer & Bückle, 2011

Italy: Sardinia (Sassari): Mte. Limbara, 9,6 km from top and ~ 900 m from fork with road SS 392; ~ 700 m; 7/6/2006; Guglielmino & Bückle leg. (loc. 259); mixed forest with *Pinus*, *Salix*, *Ficus*, *Arbutus*, *Quercus ilex* and undergrowth with *Erica arborea*, *Rubus*, Poaceae, *Cytisus*; 11 males, 15 females. — Sardinia (Sassari): road SS 392 between Tempio Pausania and Oschiri; km 18,5; ~ 500 m; 14/04/2007; Guglielmino & Bückle leg. (loc. 367); mediterranean shrubbery with *Erica arborea*, *Quercus suber*, *Quercus ilex*, *Arbutus*, *Cytisus*, *Myrtus*, *Rubus*, *Asphodelus*, Lamiaceae; 10 males, 15 females. — Apulia (Foggia): Gargano, road Cagnano - S. Giovanni Rotondo 400 m before fork to S. Marco in Lamis, Bosco Quarto; ~ 650 m; 02/06/2010; Guglielmino & Bückle leg. (loc. 508); open area with *Asphodelus*, ferns within forest with *Quercus*, *Crataegus*; 5 males. (CGB).

Eupteryx melissae Curtis, 1837

Italy: Friuli Venezia Giulia (Gorizia): Monfalcone, Natural Reserve Isola della Cona, Foce Isonzo; N45°44'44" E13°30'49"; s.l.m.; 17/07/2016; Guglielmino & Bückle leg. (loc. 772); moist areas near ponds with *Bolboschoenus*, *Phragmites*, *Spartina*, *Juncus*, and pasture with *Rubus*, *Malva*, Poaceae; 28 males, 36 females. — Apulia (Bari): Gravina, Bosco Difesa Grande, SP 158 7,1 km from fork from road Gravina – Matera, little road on the left; ~ 350 m; 09/06/2010; Guglielmino & Bückle leg. (loc. 523); mixed forest prevalently with *Quercus* near brook, moist areas with rivulets with *Carex*, *Salix*; 15 males, 11 females. — Latium (Rieti): Lago di Piediluco, Madonna della Luce, west of road SS 79, Km 28,6; N42°31'36.8" E12°46'10.9"; 372 m; 22/8/2000; Guglielmino & Bückle leg. (loc. 87); moist meadow; 2 males, 3 females. (CGB).

Description

Eupteryx montezuma sp. nov.

Measurements: Males: Body length 2.85-3.15 mm; length of face 0.9 – 0.95 mm; width of head 0.56-0.58 mm; length of hind tibia 1.38-1.46 mm; length of metatarsus 0.86-0.92 mm. Females: Body length 2.75-3.5 mm; length of face 0.95-1.03 mm; width of head 0.54-0.61 mm; length of hind tibia 1.3-1.58 mm; length of metatarsus 0.79-0.92 mm.

Coloration (Fig. 1, 2): Male (Fig. 1): Frontoclypeus light yellow, medially rather white, in its lower part laterally ± dark; anteclypeus yellow-white with ± dark lateral parts; temples white, medially bordered by vertical black stripe parallel to lower half of border of eyes until inner margin of antenna; genae anteriorly black, posteriorly white (Fig. 3A); vertex white with pair

of longitudinal undulate basally often fused black markings from hind margin of vertex until uppermost region of frontoclypeus; pronotum white with extended black markings consisting of two lateral spots and two elongate rings, posteriorly generally close (Fig. 3B), rarely open (as in Fig. 3D) reaching almost from fore to hind margin; scutellum yellow with two large approximately triangular dark spots, apical part rather white with black lateral areas; wings white with brown markings; radial vein generally not completely covered by brown marking distally of wax area; underside of thorax largely brown, abdomen dark brown with narrow light margins; genital segment brown with white genital plates; legs yellow with brown hind coxae; apex of hind tibia very slightly fuscous; last segment of each tarsus fuscous; distal half of first segment of tarsus III black (Fig. 3E).

Female (Fig. 2): As males, generally with the following exceptions: Anteclypeus black, frontoclypeus with distinct lateral dark band over its whole extension (Fig. 3C), vertex markings frontally sometimes more extending or even reaching base of antenna and fused with distal end of temporal stripe; first segment of tarsus III completely light; genital segment largely black with yellow pregenital sternite.

Male genital morphology

Aedeagus shaft slender, equally wide both in lateral and in ventral view, slightly bent dorsad, somewhat more distinctly in its apical half. Apical appendages dorsoventrally flattened, bent basad and mediad, crossing each other only with their very tips, in lateral view nearly parallel to aedeagus shaft (Figs 4A-D). Styles as in other species of the *E. melissae* group without special features (Fig. 4G). Pygofer lobes with small but distinct apophysis (Fig. 4E). Apodemes of 2nd abdominal sternum long, reaching 6th sternum (Fig. 4F).

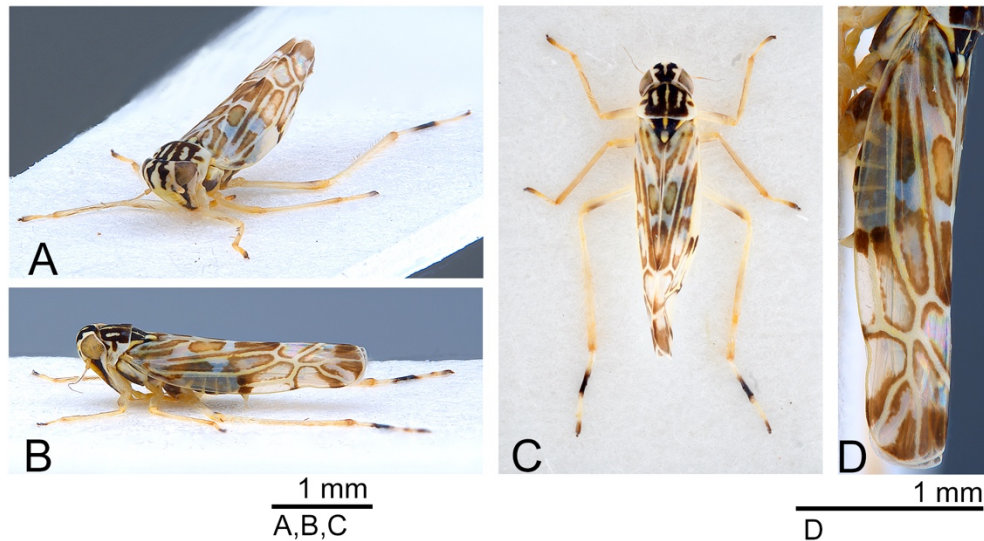


Fig. 1: *Eupteryx montezuma* sp. nov. Paratypes, males, habitus. Italy: Calabria (Reggio Calabria): Aspromonte, Galliciano. A. fronto-dorso-lateral view; B. lateral view; C. dorsal view; D. left fore wing. (B-D: other specimen).

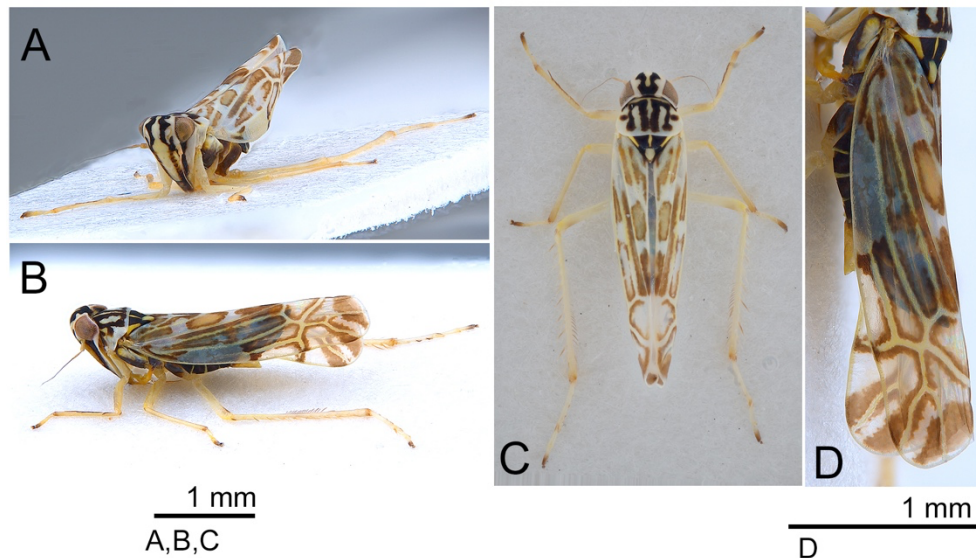


Fig. 2: *Eupteryx montezuma* sp. nov. Paratypes, females, habitus. Italy: Calabria (Reggio Calabria): Aspromonte, Galliciano. A. fronto-dorso-lateral view; B. lateral view; C. dorsal view (other specimen); D. left fore wing (same specimen as in fig. A).

Type series. Holotype male: Italy: Calabria (Reggio Calabria), Aspromonte, Galliciano, Monte Scafi; N38°01'20.3" E15°52'57.2"; 941 m; 25.4.2014, Guglielmino & Bückle leg. (loc. 719); mixed forest, open areas, Fabaceae, shrubs. — Paratypes: Same data as holotype; 5 males, 6 females. — Calabria (Cosenza), Catena Costiera, road between Palazzello and Fuscaldo; 800 m; 15.8.1989, Guglielmino & Bückle leg. (loc. 37Sud); meadows with *Alnus cordata*; 1 male. — Sicily (Catania), Ficarazzi; N37°33'25" E15°07'33"; 170 m; 17.5.1987; D'Urso leg.; 1 male. — Sicily, Etna, Maletto, Case Cucchiara; 1070 m; VB 90 84; 28.5.1988; Guglielmino leg.; 1 female. Holotype, 1 male and 1 female paratypes are deposited in Senckenberg Naturhistorische Sammlungen Dresden, Museum für Tierkunde, Dresden, Germany (MTD); 5 male and 5 female paratypes are deposited in Private collection Guglielmino/Bückle (CGB). 1 male and 1 female paratypes are deposited in Private collection Vera D'Urso (CD).

Etymology. The species is named after its pattern of head markings, which remind the ornaments once used by the Aztec culture in Central America.

Distribution. The species is known to date from northeastern Sicily round the Etna Mountain and from Calabria (Aspromonte, Catena Costiera).

Ecology. The species was collected in open forests or meadows with shrubs. In one locality it occurred together with *E. cytinsularis* Guglielmino, Lauterer & Bückle, 2011. 12 specimens on the Aspromonte Mountain were collected on a *Cytisus* like shrub, which may be the host plant. Specimens were found prevalently in spring (April and May), one male in August.

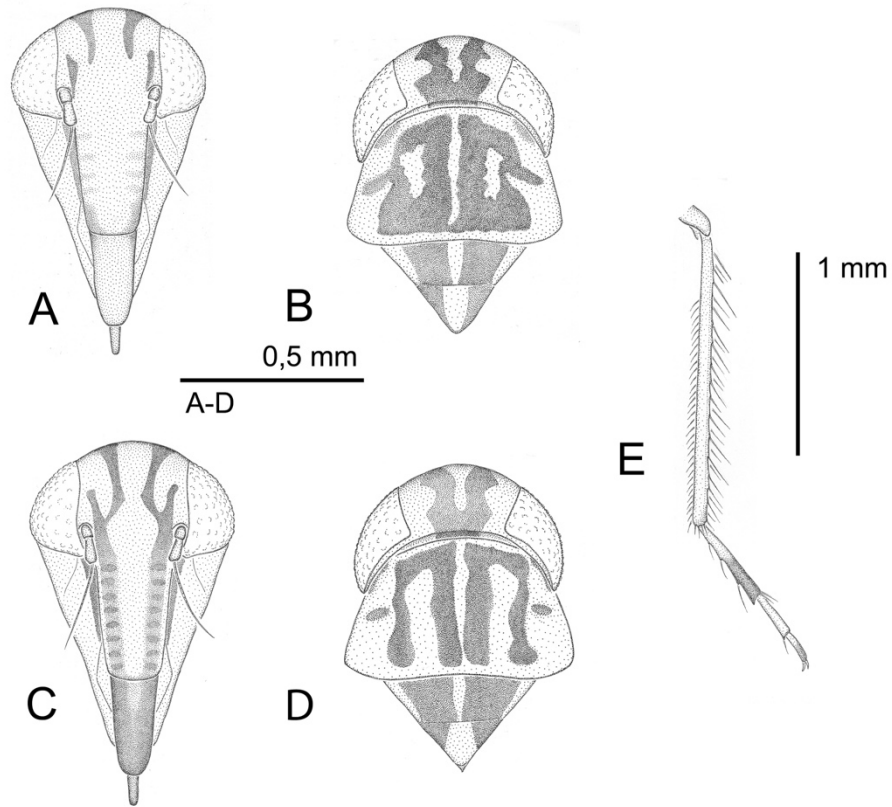


Fig. 3: *Eupteryx montezuma* **sp. nov.** Paratypes, male (A, B, E) and female (C, D). Italy: Calabria (Reggio Calabria): Aspromonte, Galliciano A. Face, male. B. Head, pronotum, scutellum, male. C. Face, female. D. Head, pronotum, scutellum, female. E. Right hind leg, male.

4. Discussion

The main characters to discern differences and affinities between the new species and other members of the *melissae* group concern coloration, face length, and aedeagus morphology (Table 1). The coloration indicates a distinct affinity of *E. montezuma* to *E. andalusiaca* Ferrari, 1882 and *E. cytinsularis*. It shares with *E. andalusiaca* largely the pattern of markings on the head, even though these markings are often more extended in the latter species so that males have the coloration of *E. montezuma* females. *E. cytinsularis* presents on its face two generally

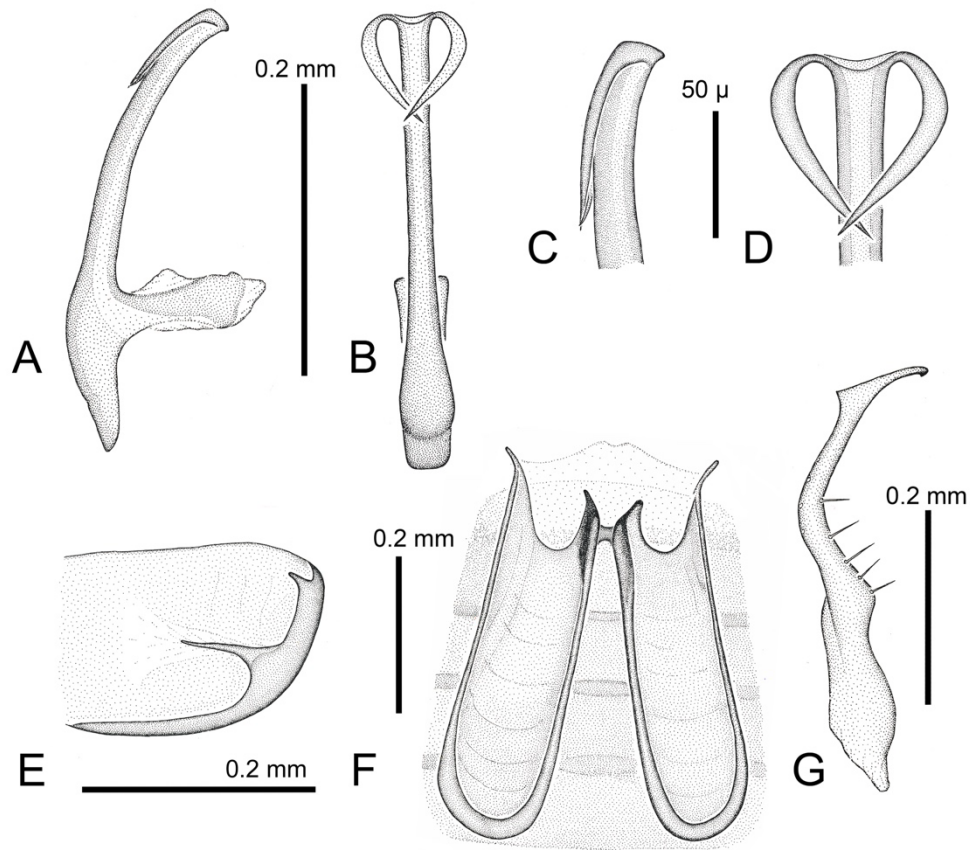


Fig. 4: *Eupteryx montezuma* **sp. nov.** Paratype, male genitalia. Italy: Calabria (Reggio Calabria): Aspromonte, Galliciano. Aedeagus: A. Right lateral view; B. Ventral view. - Apex of aedeagus: C. Lateral view; D. ventral view. E. Right pygofer lobe, from inside. F. 2nd - 6th abdominal sterna, dorsal view. G. Left genital style, dorsal view.

isolated spots which in the other two taxa are connected with the vertex markings. The anteclypeus is dark in *E. andalusiaca* in both sexes, but only in females in the other two species. However, the pronotum markings are more extended posteriorad in *E. montezuma*, sometimes forming a complete elongate ring reaching the hind margin. Both in *E. andalusiaca* and in *E. cytinsularis* these markings are limited to the anterior and lateral part and there connected with the lateral spot which in *E. montezuma* remains often isolated. The light coloration in *E. andalusiaca* and *E. montezuma* is rather white with only a slight yellow tinge, in *E. cytinsularis* more distinctly yellow. Finally, the males in both *E. cytinsularis* and *E. montezuma* display a black distal part of the first article of their metatarsus, whereas in *E. andalusiaca* the metatarsus is completely light also in males.

E. melissae Curtis, 1837 displays rather distinct differences to the three species treated before in nearly all characters of coloration. Above all, its head and pronotum markings are quite different with only isolated spots. In its aedeagus shape, however, *E. melissae* displays apparently a strong affinity to *E. montezuma* with a very similar slender and slightly curved shaft and two apical appendages which are bent basad with crossing tips ventrally of the shaft. These branches display a wide curvature in *E. montezuma* with barely crossing tips and are very narrow to the shaft in *E. melissae* with distinctly overlapping apices. The other two species have instead a \pm short and stout aedeagus shaft in lateral view and a wide truncate (in *E. andalusiaca*) or acuminate (in *E. cytinsularis*) apex.

E. montezuma is distinguished from the other three species also by its elongate face (ratio face length to head width about 1.6-1.75, but less than 1.5 in the other species).

Remarks: the coloration characters of the three species treated in the above table are variable to some degree. Therefore, not every specimen may correspond exactly to the scheme presented in that table.

5. Zusammenfassung

Eupteryx montezuma sp. nov., (Rhynchota, Auchenorrhyncha, Cicadellidae, Typhlocybinae), eng verwandt mit *E. andalusiaca* Ferrari, 1882, *E. cytinsularis* Guglielmino, Lauterer & Bückle, 2011 und *E. melissae* Curtis, 1837, wird aus Kalabrien und Sizilien beschrieben. Ihre Stellung innerhalb der Gattung *Eupteryx* Curtis, 1833 wird diskutiert.

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Table 1: Some distinctive characters of *E. montezuma*, *E. andalusiaca*, and *E. cytinsularis*.

Character	<i>E. montezuma</i>	<i>E. andalusiaca</i>	<i>E. cytinsularis</i>
ratio face length to head width	1.6 – 1.75	<1.5	<1.5
head markings	face spots connected with vertex markings	face spots connected with vertex markings	face spots generally isolated
anteclypeus	dark only in females	dark in both sexes	dark only in females
metatarsus	first article white in females, distally black in males	first article white in both sexes	first article white in females, distally black in males
light coloration of body	whitish	whitish	yellow
aedeagus	shaft slender and long; apex short, \pm straight	shaft moderately short; apex protruding, abruptly truncate	shaft compressed, very short; apex acuminate

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Addresses of authors:

Adalgisa Guglielmino: Rosaurus Research Center of AuchenorrhynchoLOGY, section 2, Piazza San Faustino 16, I-01100 Viterbo, Italy; e-mail: guglielmotettix@gmail.com

Vera d'Urso: Rosaurus Research Center of AuchenorrhynchoLOGY, section 1, Via Tripoli 72, I-95021 Aci Castello (CT), Italy; e-mail: dursovera@yahoo.it

Christoph Bückle: Rosaurus Research Center of AuchenorrhynchoLOGY, section 3, Neckarhalde 48, D-72070 Tübingen, Germany; e-mail: rosaurusrex@gmx.de

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