

|         |         |       |  |                |
|---------|---------|-------|--|----------------|
| VIERAEA | Vol. 31 | 27-31 | Santa Cruz de Tenerife, diciembre 2003 | ISSN 0210-945X |
|---------|---------|-------|--|----------------|

***Euscelidius variegatus* (Kirschbaum, 1858),  
a new leafhopper record to Madeira Archipelago  
(Hemiptera, Cicadellidae)**

FÁBIO REIS <sup>1</sup> & DORA AGUIN-POMBO <sup>1,2</sup>

<sup>1</sup>*Department of Biology, University of Madeira, Campus da Penteada,  
9000-390 Funchal, Madeira, Portugal*

<sup>2</sup>*CEM, Centre for Macaronesian Studies, Campus da Penteada,  
9000-390 Funchal, Madeira, Portugal*

REIS, F. & D. AGUIN-POMBO (2003). *Euscelidius variegatus* (Kirschbaum, 1858) (Hemiptera, Cicadellidae), una nueva cita para el archipiélago de Madeira. *VIERAEA* 31: 27-31.

**ABSTRACT:** A new record of *Euscelidius variegatus* is reported for the first time to Madeira. Data on its distribution and bioecology on this Island are included.

**Keywords:** Cicadellidae, Leafhoppers, *Euscelidius*, new record, Madeira.

**RESUMEN:** *Euscelidius variegatus* se cita por primera vez para Madeira. Se incluyen también datos sobre su distribución y bioecología en esta isla. **Palabras Clave:** Cicadellidae, cigarrillas, *Euscelidius*, nueva cita, Madeira.

## INTRODUCTION

The genus *Euscelidius* Ribaut, 1972 includes in Europe two species, *E. variegatus* (Kirschbaum, 1858) and *E. schenckii* (Kirschbaum, 1868), both vectors of various disease micro-organisms which are responsible for important economic damage to plant cultures (Bráck, 1979; Nielson, 1979). *E. variegatus* is considered a vector species of many wild and/or worldwide cultivated plant disease agents as the *Chrysanthemum* yellows (CY) phytoplasma (Palermo *et al.*, 2001), the corn stunt spiroplasma (Alivizatos, 1987), Aster yellows MLO (Severin, 1947), the Clover Phyllody disease (Gianotti, 1969) among others (Jensen, 1969). Furthermore, in laboratory tests it was also able to infect grapevine with the Grapevine Flavescence Dorée MLO (Caudwell *et al.*, 1970; Lherminier *et al.*, 1989), presently a devastating disease to vineyards in some European countries.

*Euscelidius variegatus* is widely distributed in the western Palaearctic Region (Nast, 1987) being an immigrant in North America (Jensen, 1969). In the Palaearctic Region it has been recorded from North Africa (Tunisia, Algeria, Morocco) up to Poland extending

southeast to Moldavia and Ukraine up to Caucasus and Transcaucasia (Armenia, Azerbaijan). In Asia, it is present in Tajikistan reaching Siberia in the Northeast. Its great potential as a colonizer is remarkable, not only for being capable to establish on islands close to continents such as Great Britain, Sardinia, Sicily and Balearic Islands but also, because it has been spread through oceanic islands of two Macaronesian archipelagos: the Azores (São Miguel, Graciosa, São Jorge, Pico and Faial) and the Canary Islands (La Palma, Tenerife, La Gomera and Fuerteventura). Surprisingly, this species was unknown so far from Madeira. This work records this species from Madeira and adds information on host plant and habitat associations.

## MATERIAL AND METHODS

All specimens except one were sampled with a sweeping net in 11 localities:

Porto Moniz: Chão da Ribeira (450m), 29-VII-1997, 1♂ on Light trap (D. Aguin-Pombo leg.); idem, 15-V-1998, 3♂♂, 2♀♀ on herbaceous plants (D. Aguin-Pombo leg.); idem, 15-X-2001, 1♂ on herbaceous plants (F. Reis leg.); idem; 15-X-2001, 4♂♂, 2♀♀ on *Trifolium repens* L. var. *repens* (F. Reis leg.); Chão da Ribeira (480m), 21-V-2002, 1♀ on Gramineae (F. Reis leg.); Santa Madalena (700m), 08-XI-1996, 26♂♂, 6♀♀ on Gramineae (D. Aguin-Pombo leg.). Santana: Ribeiro Frio (900m), 28-IV-2000, 1♂, 1♀ on herbaceous plants (M. J. Aveiro leg.); Queimadas (883 m), 07-IX-2001, 1♀ on herbaceous plants (F. Reis leg.). Santa Cruz: Gaula (200 m), 01-IV-2000, 1♂ on Gramineae (F. Freitas leg.); Meia Serra (1175m), 27-V-2002, 1♀ on *Brachypodium sylvaticum* (Huds.) P. Beauv. (E. Nunes leg.). Funchal: Penteada (130 m), 04-IV-2000, 1♂ on Gramineae (J. Barreto leg.). Câmara de Lobos: Curral das Freiras (610m), 28-V-2001, 1♂ on *Apium nodiflorum* (L.) Lag. (E. B. N. Freitas leg.). Ribeira Brava: Serra de Água (700m), 17-V-2000, 1♂, 1♀ on Gramineae (L. Sousa leg.), 1♂ on Gramineae (M. J. Aveiro leg.). Calheta: Fajã da Ovelha (650m), 06-VIII-2001, 1♀ on *Brachiaria mutica* (Forssk.) Stapf (F. Reis leg.); Salão (450m) - Ponta do Pargo, 01-VIII-2001, 1♂ on Gramineae (E. Nunes leg.).

## RESULTS

Specimens from Madeira correspond to Ribaut's description (1952) in external morphology and body size. The overall body length was  $4.09 \pm 0.25$  mm (3.77–4.66 mm, n=25) in males while in females was  $4.61 \pm 2.72$  mm (4.32–5.10 mm, n=15). It was observed differences in the thickness and curvature of the hooked apical part of aedeagus. Four different types of aedeagus were recognized among the 42 males studied (Figure 1). Of these, type A was the most common being observed in 37 specimens, type B in 3 and types C and D in 1 individual each. The longest apical setae of styles varied in number from 3 to 8 setae (Figure 1).

Distribution. This species is widely distributed in Madeira occurring from 130 m up to 1175 m in the interior parts of the island. Like in Azores and Canary Islands it was found in dry and coastal areas, in swampy places and agricultural fields (Lindberg, 1941; Sergel & Baez, 1990). In Madeira as in Azores, this species was found associated to herbaceous vegetation growing with *Pinus* and *Eucaliptus* (Lindberg, 1941).

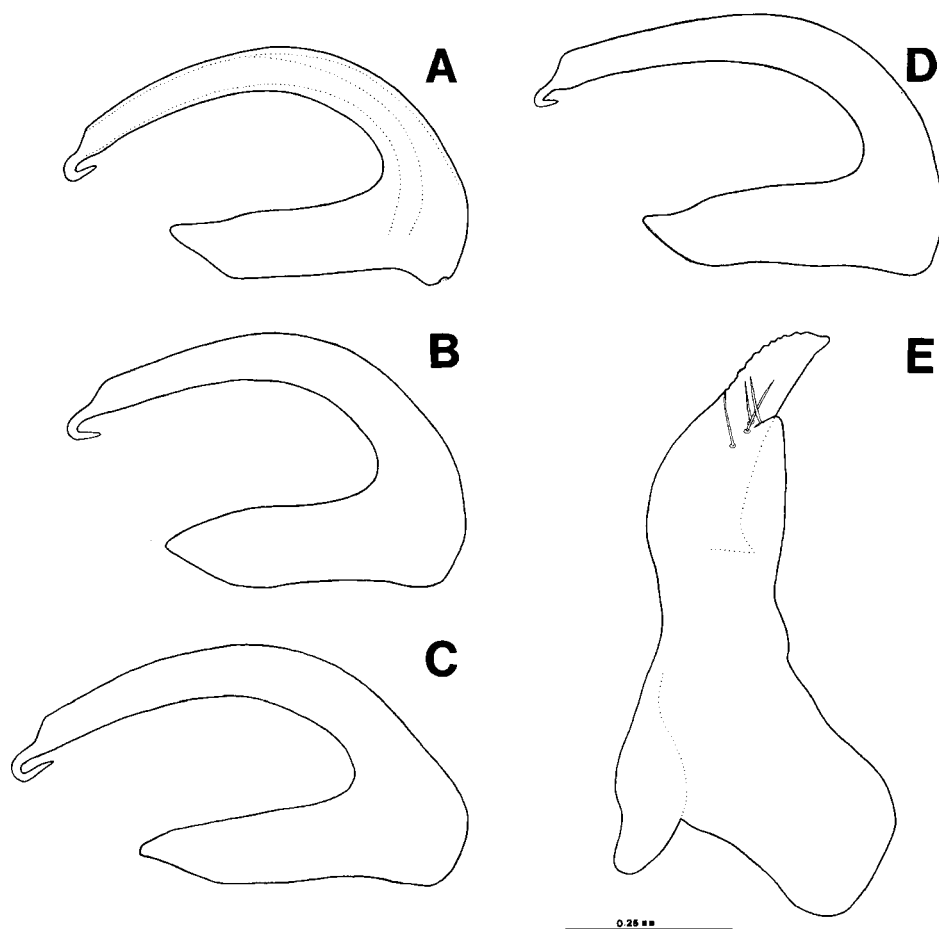


Figure 1. *Euscelidius variegatus*. A-D. Aedeagus in lateral view showing different types of variation. E. Right style in ventral view with apical setae.

**Bioecology.** Adults were observed from April to November but they were more common from October to November. According to the food plant records it is considered a polyphagous species. In addition to the three plant families recorded in this study: Gramineae (*Brachypodium sylvaticum*, *Brachiaria mutica*), Leguminosae (*Trifolium repens* var. *repens*) and Umbelliferae (*Apium nodiflorum*), it feeds also on species of Chenopodiaceae, Labiatae, Malvaceae, Solanaceae and Vitaceae (DeLong & Severin, 1947; Alma *et al.*, 1988; Quartau, 1980; Cardoso, 1974).

## ACKNOWLEDGEMENTS

We want to thank all the students and colleagues that have collaborated with material for this study.

## REFERENCES

- ALIVIZATOS, A. S. (1987). Corn stunt spiroplasma in the leafhopper *Euscelidius variegatus*. -Journal of Phytopathology 120(4): 327-336.
- ALMA, A., C. ARNO, A. ARZONE, C. VIDANO (1988). New Biological reports of Auchenorrhyncha in Vineyards. -Proceedings of the 6th Auchenorrhyncha Meeting, Turin, Italy, 7-11 September 1987, 509-516.
- BRÁCK, J. (1979). Leafhopper and planthopper vector of plant disease agents in central and southern Europe. In: K. Maramorosch & K.F. Harris (Eds.), Leafhopper vectors and plant disease agents. -New York, San Francisco, London, Ed. Acad. Press. 97-154.
- CARDOSO, A. M. (1974). Reconhecimento das cigarrinhas (Homoptera, Cicadelloidea) de Portugal Continental. -Agronomia Lusitana 35 (2): 145-167.
- CAUDWELL, A., C. KUSZALA, J. C. BACHELIER & J. LARRUE (1970). Transmission de la Flavescence dorée de la vigne aux plantes herbacées par l'allongement du temps d'utilisation de la Cicadelle *Scaphoideus littoralis* Ball et l'étude de sa survie sur un grand nombre d'espèces végétales. -Annales de Phytopathologie 2: 415-428.
- DELONG, D. M. & H. H. P. SEVERIN (1947). Characters, distribution and food plants of newly discovered vectors of California aster virus. -Hilgardia 17: 527-538.
- GIANNOTTI, J. (1969). Transmission of clover phyllody by a new leafhopper vector, *Euscelidius variegatus*. -Plant Disease Reporter 53: 173.
- JENSEN, D. D. (1969). Comparative transmission of Western X-Disease virus by *Colladonus nontanus*, *C. geminatus*, and a new leafhopper vector, *Euscelidius variegatus*. -Journal of Economic Entomology 62(5): 1147-1150.
- LHERMINIER, J., T. VAN SCHELTINGA, E. BOUDON PADIEU & A. CAUDWELL (1989). Rapid immunofluorescent detection of the Grapevine Flavescence Doree mycoplasma-like organism in the salivary glands of the leafhopper *Euscelidius variegatus* Kbm. -Journal of Phytopathology 125(4): 353-360.
- LINDBERG, H. (1941). Die Hemipteren der Azorischen Inseln. -Commentationes Biologicae 8(8): 1-27.
- NAST, J. (1987). The Auchenorrhyncha (Homoptera) of Europe. -Annales Zoologici Fennici 40: 535-661.
- NIELSON, M. W. (1979). Taxonomic relationship of leafhopper vectors of plant pathogens. In: K. Maramorosch & K.F. Harris (Eds.), Leafhopper vectors and plant disease agents. -New York, San Francisco, London, Acad. Press. 3-27.
- QUARTAU, J. A. (1980). A contribution to the knowledge of the Cicadellidae (Homoptera: Auchenorrhyncha) of the Azores. -Bocagiana 49: 1-3.

- PALERMO, S., A. ARZONE & D. BOSCO (2001). Vector-pathogen-host plant relationships of *Chrysanthemum* yellows (CY) phytoplasma and the vector leafhoppers *Macrostelus quadripunctulatus* and *Euscelidius variegatus*. -Entomologia Experimentalis et Applicata 99(3): 347-354.
- RIBAUT, H. (1952). Homoptères Auchénorhynches II. (Jassidae). Faune de France 57. - Paris, Paul Lechevalier et Fils. 474 pp.
- SERGEL, R. & M. BÁEZ (1990). On the biotic diversity of Eastern Atlantic Islands and its implication for the Theory of Island Biogeography. -Courier Forschungs.-Inst. Senckenberg (129): 25-41.
- SEVERIN, H. H. P. (1947). Newly discovered leafhoppers vectors of California aster-yellows virus. -Hilgardia 17 (16): 511-524.